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THE MARKETING AND DISTRIBUTION OF AMERICAN-GROWN BERMUDA ONIONS

By

W. MACKENZIE STEVENS

Formerly Associate Marketing Specialist, Bureau of Agricultural Economics

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EXTENT OF THE ONION INDUSTRY

Onions are among the most widely grown staple vegetables produced in the United States. Forty of the forty-eight States ship them in carload quantities, and annual shipments total more than 20,000 cars. They are marketed during every month of the year. The early crop begins in March with the harvesting of Bermuda onions in certain hot irrigated sections close to the Mexican border. By the 1st of June shipments from other southern areas have attained considerable volume. This intermediate crop supplies the market for the remainder of the summer, with harvest becoming more and more general as the season advances. By fall, onions are supplied generally from the Northern States. Part of this late crop is placed in storage and supplies the country throughout the winter and until the early crop begins in the South. Table 1 and Figure 1 show the relative importance and the shipping season of the leading onion-shipping States.

[1] The writer is indebted to Dr. A. E. Cance, of Massachusetts Agricultural College, and to F. W. Mally, county agricultural agent, Laredo, Tex., for many valuable suggestions and criticisms, and to Miss Mary B. Hall and Miss Lucy Watt for the tabulation of many of the figures used in the charts and tables shown in this bulletin.

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TABLE 1.—*United States onion shipments (carloads), by months, 1917 to 1923* [1]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total calendar year	Total[2] crop year
1917	986	355	232	2,679	2,960	1,156	678	1,434	2,740	4,068	1,348	516	19,152	21,041
1918	901	1,062	1,023	1,799	2,290	1,141	1,177	1,921	3,075	4,211	2,410	1,017	22,027	22,549
1919	1,488	1,213	949	1,189	2,462	646	1,844	1,909	3,522	2,963	1,702	987	20,874	20,549
1920	1,368	1,159	999	1,938	4,242	607	1,030	1,918	3,675	4,910	2,918	1,186	25,950	28,223
1921	2,038	1,769	1,724	2,511	2,559	822	1,482	2,048	3,361	2,608	1,248	1,148	23,318	20,767
1922	1,724	1,011	719	3,085	2,301	937	1,695	2,497	4,603	5,129	2,185	1,677	27,563	29,783
1923	2,110	1,484	1,569	1,370	2,541	762	1,502	2,243	3,865	4,940	2,676	1,685	26,747	-------

[1] Figures are corrected to Jan. 1, 1924. The more recent ones are subject to minor revisions.
[2] The totals indicated represent the shipments by seasons. For example, the 1917 crop was marketed during 1917 and 1918; the 1918 crop during 1918 and 1919, etc.

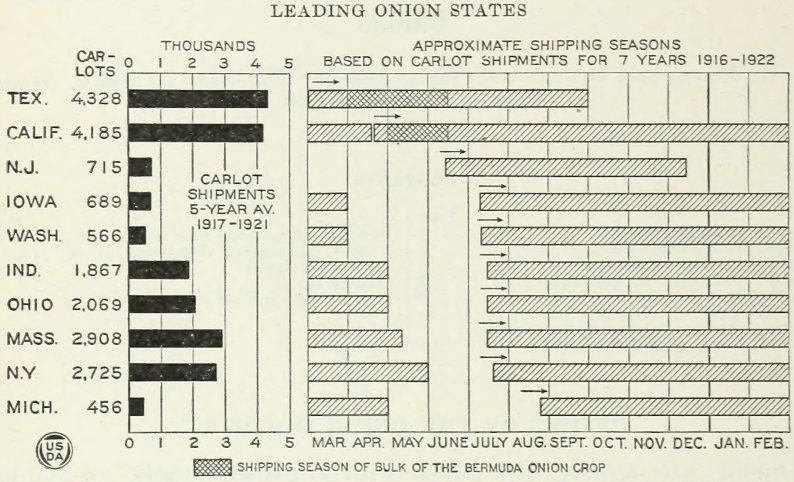

FIG. 1.—Relative importance and approximate shipping seasons (based on earliest and latest shipping dates). Onions are grown in large quantities in many States, but Texas and California together produce over one-third of all onions grown in the United States and shipped in carload quantities. Nearly all Bermuda onions are grown in the southern portions of these two States. The principal Bermuda onion movement (indicated by crosshatching) occurs during April, May, and June. As the season progresses new onions of other varieties gradually begin moving from more northern areas. Some of the late onions are placed in storage and continue to supply the market through the winter. California ships the year round

Between 85 and 90 per cent of the onions shipped during April, May, and June are of a mild-flavored type known as Bermudas. The conditions surrounding the marketing of Bermudas are very different from those under which the main crop is marketed, and for this reason this type of onion was selected for a special marketing study.[2]

Information in this bulletin regarding prices and market conditions was secured directly from growers, shippers, buyers, receivers, and other dealers, by officials of the United States Department of Agriculture, who were located in the producing sections and in the principal consuming centers of the country during the years covered. Information regarding carlot movement and distribution was obtained daily from the transportation officials over whose lines the tonnage passed. Data thus obtained from original authoritative and diversified sources were assembled daily, verified,

[2] Information regarding the production and harvesting of this crop is found in Bulletin No. 46 of the Texas Department of Agriculture: The Bermuda Onion, by F. W. Mally.

telegraphed to shipping points, and issued as a daily report to growers, dealers, and others interested, in order to facilitate the efficient distribution of the crop.

In addition to the daily market news service, the department supervised the distribution of empty cars to growers in 1918 in order that the most efficient use might be made of the short supply; stimulated organization among growers; cooperated with Texas in the establishment of an inspection service at shipping points; maintained an inspection service in consuming centers; conducted investigations into the best methods of loading; and developed and recommended standard Bermuda onion grades.

COMMERCIAL PRODUCING AREAS

Bermuda onion production reaches commercial importance in only three places in the United States—southern Texas, the Coachella Valley of California, and to a small extent, Louisiana. Southern

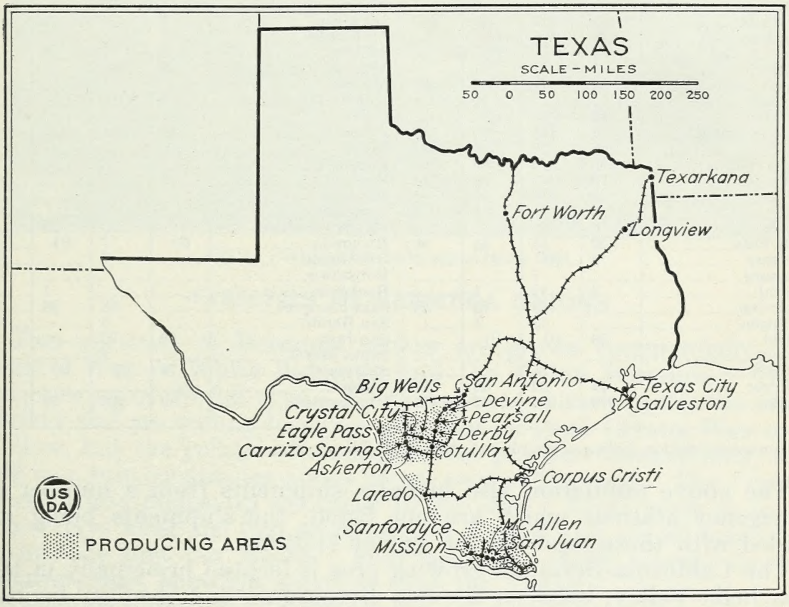

FIG. 2.—Texas Bermuda onion-growing areas. The southern Texas Bermuda growing area, which produces annually 80 per cent of the domestic Bermuda onions shipped, is divided by railroad and irrigation conditions into three distinct districts—the upper counties, the Laredo section, and the lower Rio Grande Valley. The cities shown outside of the producing areas are the principal Texas diversion points

Texas has grown annually 80 per cent or more of the Bermuda onions of the United States.

The first commercial shipment of Texas Bermuda onions seems to have been made from Cotulla, Tex., in 1900. Results were so satisfactory that the acreage was rapidly increased, and 3,000 to 5,000 cars are now shipped from southern Texas.

The Texas area varies somewhat from year to year, but the principal shipping sections are as follows:

1. The Laredo section, a narrow strip along the American side of the Rio Grande in Webb County, close to Laredo. This section ships nearly a third of the Texas Bermudas.

2. The upper counties section, including the counties of Maverick, Zavalla, Dimit, LaSalle, Frio, and contiguous counties. Nearly half of the Texas shipments come from this section.

3. The lower Rio Grande Valley and Gulf coast section, including Hidalgo and Cameron Counties at the extreme lower tip of Texas.

A few cars are usually shipped from various other points in Texas, especially southern Texas and the vicinity of Corpus Christi. A map of the Texas producing area is shown in Figure 2. Table 2 shows in detail the shipping points and the changes from year to year.

TABLE 2.—*Carlot shipments of Texas Bermuda onions, by stations*

	1919	1920	1921	1922		1919	1920	1921	1922
Total	2,835	5,002	4,126	4,286	Las Vegas	12	(1)	(1)	
					Leming				1
Alamo		143	6	13	Lyford		2	3	
Asherton	566	689	733	645	Madero	2	(1)	(1)	
Austin			1	4	Mercedes		25		
Big Wells	283	619	519	395	McAllen	5	77	7	17
Brundage	79	(1)	(1)		McKinney				2
Byrd	85	(1)	(1)		Millett	2	4	3	9
Calallen	5	31	11	8	Mission	33	260	8	17
Carrizo Springs	36	171	378	309	Moore		1		
Charlotte			10	4	New California	6	(1)	(1)	
Childress	40	(1)	(1)		Odem				3
Corpus Christi	21	155	109	118	Pearsall	54	214	113	67
Cotulla	102	229	166	315	Pharr		28		8
Crystal City	196	176	283	391	Pleasanton		3		1
Derby	70	142	96	141	Poteet	12	17		
Devine	37	118	91	46	Premont				2
Dilley	2	11	1	1	Princeton				3
Donna	6	65			Raymondsville		23	23	
Eagle Pass	22	55	44	90	Richondo	(1)	7	(1)	
Ebenezer	8	(1)	(1)		Rio Hondo		7		
Edinburg		7			Robstown				1
Encinal	3	12	1		Rockdale			1	
Fowlerton		63	63	24	Sam Fordyce		98	24	
Harlingen		13	4		San Benito		5		
Icefield	36	(1)	(1)		San Juan	12	70		
Kenedy		1			Santa Maria		2		
La Feria		15			Sharyland	18	(1)	(1)	
La Pryor	14	52	24	28	Victoria				2
Laredo	979	1,286	1,315	1,621	Unclassified	89	106	89	

[1] Nonagency station, billing accomplished at nearest billing station.

The above tabulation also includes shipments from a number of nonagency stations which are not listed, the shipments being included with those reported for agency stations.

The California-Bermuda growing area is located principally in the Coachella Valley, between the San Bernardino and the San Jacinto mountains in Riverside County, although a few are grown in the Imperial Valley in Imperial County. The principal shipping points are Coachella, Thermal, Indio, Brawley, and Imperial.

The Louisiana Bermuda district is small and located principally in Lafourche Parish. Most of the Louisiana onions are Creoles, a type differing from the Bermuda.

Nearly all of the Bermuda production in both Texas and California occurs in a hot, dry climate, under irrigation, where cheap labor is available. In the Laredo section irrigating is done by means of the individual power plants of each grower. Force pumps raise the water from the Rio Grande and send it in huge flumes to the fields or to reservoirs on the hillsides whence ditches conduct the water to the fields. In the lower Rio Grande Valley larger irrigation projects are the rule. Artesian wells and the Nueces and Frio Rivers

are the sources of water in the upper counties. In the Coachella Valley, Calif., artesian wells are the source of water. The Colorado River supplies the Imperial Valley.

Much labor is required in the growing of Bermuda onions, because of the large amount of hand work necessary in the various operations; growing sets from seed, transplanting, hoeing, irrigating, harvesting, and grading. (See fig. 3.) In Texas this work is largely done by Mexican families who live in these sections; in California, Japanese are employed as well.

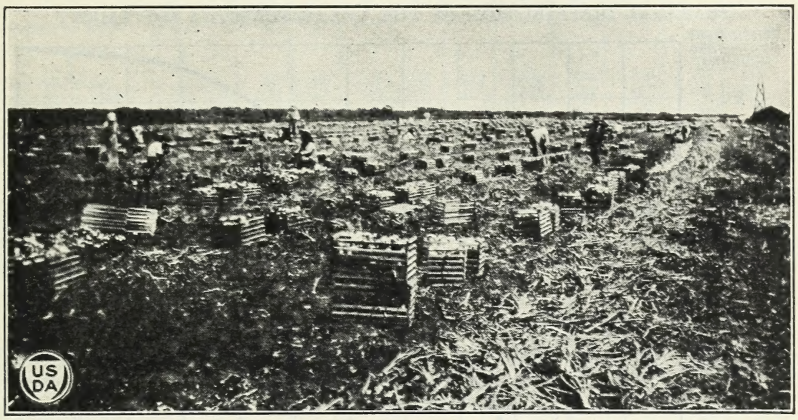

FIG. 3.—Grading Bermuda onions in the field

VARIETIES OF BERMUDA ONIONS

Two varieties of Bermuda onions are grown commercially, the Crystal Wax or White Bermuda and the Yellow Bermuda.[3] Both varieties are of the flat type. Certain classes of trade prefer the white variety and are willing to pay a premium for good Crystal Wax over Yellow, but the yellow onion is the more popular commercially, and and as a rule constitutes about 90 per cent of the crop. The Crystal Wax variety makes up the other 10 per cent. These begin to move a few days after the first shipments of Yellow and are all marketed within the first few weeks. They are more easily injured by hot weather, rain, or rough handling than the Yellow.

Bermuda onions have a mild flavor compared with northern-grown or late onions. They are more perishable in nature and do not store successfully, so the crop must be marketed within a short period after harvest.

SEASONAL PRODUCTION AND SHIPMENTS

The principal characteristic of the Bermuda-onion movement as compared with that of northern onions is the short period within which Bermudas are marketed. Except for a few cars, practically all of the movement takes place within a period of 12 weeks and three-fourths of it between the third and seventh weeks, inclusive. Ninety per cent of the carlot shipments have usually been marketed by the end of the eighth week. (Fig. 4.)

[3] The seedsmen of the Canary Islands refer to three varieties of Bermudas—the Crystal Wax, the White Bermuda (known in the United States as the Yellow Bermuda), and the Red Bermuda.

Texas Bermudas usually begin moving to market about the first of April and reach highest volume near the close of the month. By the end of May or early June they are mostly out of the production areas. The California movement takes place principally during May and early June. New stock other than from California is a very minor factor until after most of the Texas crop is marketed, although a few cars move from Louisiana and other southern areas during May and June. The Texas crop practically controls the market during April, May, and June.

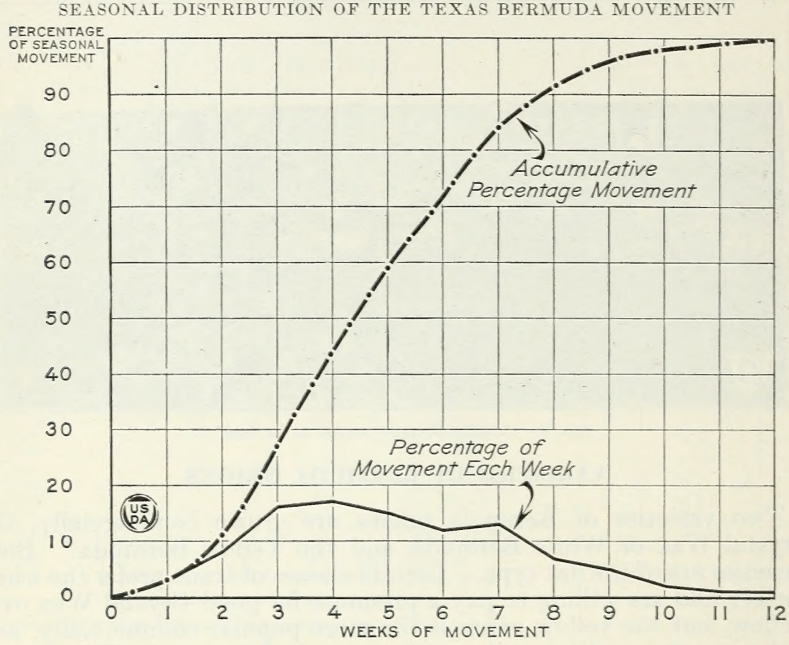

FIG. 4.—Practically all Bermuda onions are marketed within a space of 12 weeks in the spring. Three-fourths are marketed between the third and seventh week, inclusive. The chart shows the percentage of the crop that will usually have been marketed at the end of any given week

In every year studied except 1920 an initial heavy shipment has been followed by a sharp decline early in May and another peak shipment thereafter. This decline has been partly due to the rains which have occurred at that time, and partly the result of the dwindling of the output from the Laredo and lower valley sections before the heaviest shipments from the upper counties and California have begun. In 1920, when there were no heavy rains to interrupt harvesting, Texas shipments reached the highest in eight years.

The heaviest Bermuda shipment from California usually occurs late in May at about the same time as the second heavy movement from Texas.

Exceptional shipments of Bermudas have occurred as early as March 1 and as late as September 28. A striking characteristic of the Bermuda season during the four years, 1916 to 1919 inclusive, was the successive retarding of the first shipments of the season. (See Table 3.) The earliest carlot shipments during these years from Texas were March 1, 1916, March 17, 1917, April 1, 1918, and April 8, 1919. The increasing tardiness seems to have been due principally

to freezes and cold weather, and scarcity of labor, which made it impossible for many growers to plant and harvest their crops for the earliest market. Return of a more plentiful labor supply in 1920 brought early shipments again.

TABLE 3.—*Weekly carlot shipment of onions during the domestic Bermuda season*

	Total Bermudas	Weeks ending—										
		Mar. 18	Mar. 25	Apr. 1	Apr. 8	Apr. 15	Apr. 22	Apr. 29	May 6	May 13	May 20	May 27
1916 [1]												
Total new stock		30	260	552	377	472	582	459	550	727	515	379
Texas Bermudas	4,522	[2] 30	[3] 260	546	374	467	576	442	465	[4] 604	369	265
California Bermudas	251								55	62	58	55
Miscellaneous new stock				6	3	5	6	17	30	61	88	59
1917												
Total old stock		5	55	40	21	10	1	2	3	2		3
Total new stock		1	1	1	181	556	900	917	732	540	753	717
Texas Bermudas	5,892	1	1	1	[2] 181	556	900	[4] 914	725	522	626	471
California Bermudas	494									1	81	184
Miscellaneous new stock								3	7	17	46	62
1918												
Total old stock				15	93	85	125	84	61	13	4	3
Total new stock				1	83	192	398	621	282	518	710	544
Texas Bermudas	3,563			1	[2] 83	191	387	613	235	421	[4] 586	440
California Bermudas	371							7	32	70	105	74
Miscellaneous new stock						1	11	1	15	27	19	30
1919												
Total old stock				119	26	80	68	46	17	1		2
Total new stock					2	47	247	498	405	569	758	523
Texas Bermudas	2,835				2	[2] 47	246	496	392	505	[4] 600	325
California Bermudas	336							2	10	60	107	91
Miscellaneous new stock							1		3	4	51	107
1920												
Total old stock		218	220	118	52	27	54	23		2		
Total new stock			6	13	11	126	505	928	1,185	1,225	903	830
Texas Bermudas	5,038		6	[2] 13	11	126	504	877	982	[4] 929	583	578
California Bermudas	1,177							38	197	266	280	213
Miscellaneous new stock							1	13	6	30	40	39
1921												
Total old stock		473	253	144	130	137	82	57	38	35	23	25
Total new stock		4	24	213	338	413	429	665	605	656	678	427
Texas Bermudas	4,011	4	[2] 24	213	338	413	428	[4] 662	581	583	408	238
California Bermudas	899						1	3	24	73	268	184
Miscellaneous new stock											2	5
1922												
Total old stock			80	70	7	2				1		
Total new stock		4	13	124	289	904	1,091	719	442	916	462	414
Texas Bermudas	4,439	1	9	[2] 113	267	889	[4] 1,080	689	378	669	163	100
California Bermudas	1,251				1	2	8	30	61	229	288	298
Miscellaneous new stock		3	4	11	21	13	3		3	18	11	16
1923												
Total old stock		285	310	204	117	105	94	54	20	3	1	
Total new stock		9	11	1	14	88	301	507	666	579	693	434
Texas Bermudas	2,809	9	[2] 11	1	[2] 13	87	297	493	[4] 592	423	459	233
California Bermudas	706				1	1	2	13	70	152	224	165
Miscellaneous new stock							2	1	4	4	10	36

[1] Figures for old stock not available for 1916.
[2] First week with 10 or more carloads.
[3] Includes one carload Texas Bermudas shipped Mar. 1, 1916.
[4] Peak Bermudas.

TABLE 3.—*Weekly carlot shipment of onions during the domestic Bermuda season*—Continued

	Weeks ending—									
	June 3	June 10	June 17	June 24	July 1	July 8	July 15	July 22	July 29	Aug. and Sept.
1916 [1]										
Total new stock	170	39	50	24	91					
Texas Bermudas	105	4	11	4						
California Bermudas	18	2		1						
Miscellaneous new stock	47	33	39	19	91					
1917										
Total old stock									1	4
Total new stock	568	340	250	193	116	75	142	209	180	3,850
Texas Bermudas	382	202	172	121	42	14	5	3	4	49
California Bermudas	126	79	21	2						
Miscellaneous new stock	60	59	57	70	74	61	137	206	176	3,801
1918										
Total old stock	1	1								
Total new stock	377	175	172	328	358	263	291	226	247	474
Texas Bermudas	280	97	60	68	35	19	11	16	10	10
California Bermudas	47	12	14	4	6					
Miscellaneous new stock	50	66	98	256	317	244	280	210	237	464
1919										
Total old stock		1								
Total new stock	300	181	113	38	212					
Texas Bermudas	150	51	18	3						
California Bermudas	56	10								
Miscellaneous new stock	94	120	95	35	212					
1920										
Total old stock										
Total new stock	408	175	110	92	116	173	227	193	267	2,785
Texas Bermudas	239	82	30	15	11	16	23	8	5	
California Bermudas	142	24	8	5	1	1	1			1
Miscellaneous new stock	27	69	72	72	104	156	203	185	262	2,784
1921										
Total old stock	17	8		3						
Total new stock	271	171	78	148	314	226	274	355	407	5,048
Texas Bermudas	66	20	14	7	7	3		2		
California Bermudas	172	124	32	5	2	3	2	3	2	1
Miscellaneous new stock	33	27	32	136	305	220	272	350	405	5,047
1922										
Total old stock										
Total new stock	224	144	215	306	233					
Texas Bermudas	39	17	6	13	6					
California Bermudas	156	57	79	36	6					
Miscellaneous new stock	29	70	130	257	221					
1923										
Total old stock										
Total new stock	253	112	41							
Texas Bermudas	145	36	10							
California Bermudas	64	14								
Miscellaneous new stock	44	62	31							

[1] Figures for old stock not available for 1916.

The years 1920 to 1923 show the increasing efforts of growers to put their onions on the high-priced early market. The peak movement was a week or two earlier each year, with the heaviest week in 1922 exactly a month earlier than in 1919. Growers began transplanting on October 25 for the 1923 season and were through by December 1, as compared with the usual date—December 25; but their efforts were frustrated by a frost, which caught the onions in an unusually advanced state.

The heaviest weekly shipment of the eight years, 1,225 cars, occurred the week ended May 13, 1920. The usual peak has been about 700 cars. The heaviest day's shipment from Texas was on May 6, 1920, 209 cars. One hundred cars a day usually constitutes a good day's shipment. The heaviest annual movement of the eight years occurred in 1917. Nearly 6,000 cars were shipped, over twice the number that moved in 1923, the year of smallest production. California shipments have become much more important since 1919, the heaviest movement occurring in 1922.

Shipments of Bermudas were heavy in 1917 and 1920 primarily because of a high yield per acre, in turn because of weather conditions. They were low in 1919 and 1921 principally because of a reduced acreage. In 1919 the yield per acre was above the average, but the greatly reduced acreage induced by the low prices of the year before contracted shipments to the lowest point of the period. The present tendency is for every grower to plant about the same proportion of his acreage to Bermudas year after year. In 1922 acreage was increased. In 1923 the acreage was slightly increased but the very great reduction in yield per acre of merchantable stock so reduced shipments that the Bermuda movement was smaller than that of any year except 1919.

DISTRIBUTION OF SHIPMENTS

Table 4 shows the distribution of Texas onion shipments, summarized by States and geographical divisions. Nearly 80 per cent of Texas carlot shipments are finally destined to points within the territory east of the Mississippi and north of the Potomac River, a territory which embraces only 48 per cent of the population of the United States according to the 1920 census. The concentration of shipments within this area is graphically shown in Figure 5. The first six cities listed consume more than half of the Texas shipments.

TABLE 4.—*Primary distribution of Bermuda-onion shipments (carloads), by geographical sections, 1915–1922*

Group	1915, Texas	1916, Texas	1917, Texas	1918		1919		1920		1921		1922		Texas, 7-year average [1]	California, 5-year average
				Texas	California	Texas	California	Texas	California	Texas	California	Texas	California		
New England	104	348	487	182	29	217	5	350	89	342	18	317	6	320	29
Middle Atlantic	847	921	1,858	989	18	838	4	1,387	119	1,492	31	1,757	121	1,320	59
South Atlantic	51	145	236	195	2	197	----	252	2	254	1	216	5	214	2
East North Central	154	763	1,321	567	123	575	82	1,175	502	751	255	904	281	865	249
West North Central	474	727	686	564	70	321	86	667	265	684	232	275	271	561	185
East South Central	30	77	74	79	----	70	----	309	----	92	----	130	1	119	----
West South Central	790	1,055	576	265	64	291	97	727	44	387	19	332	140	519	73
Mountain	43	64	82	39	29	15	20	48	28	42	11	61	20	50	22
Pacific	4	14	26	5	36	----	42	----	127	3	150	30	188	11	109
Canada	8	40	106	36	2	38	----	74	2	47	1	53	11	56	3
Cuba	----	----	----	4	----	21	----	----	----	26	----	42	----	13	----
Unknown	[2]	368	440	438	----	252	----	49	----	----	----	322	----	267	----
Total [3]	2,505	4,522	5,892	3,363	373	2,835	336	5,038	1,178	4,120	718	4,439	1,044	4,315	731

[1] 1916–1922.

[2] In 1915 known destinations only are given, because complete records are not available.

[3] Totals represent number of carloads traced annually for California, because complete records are not available.

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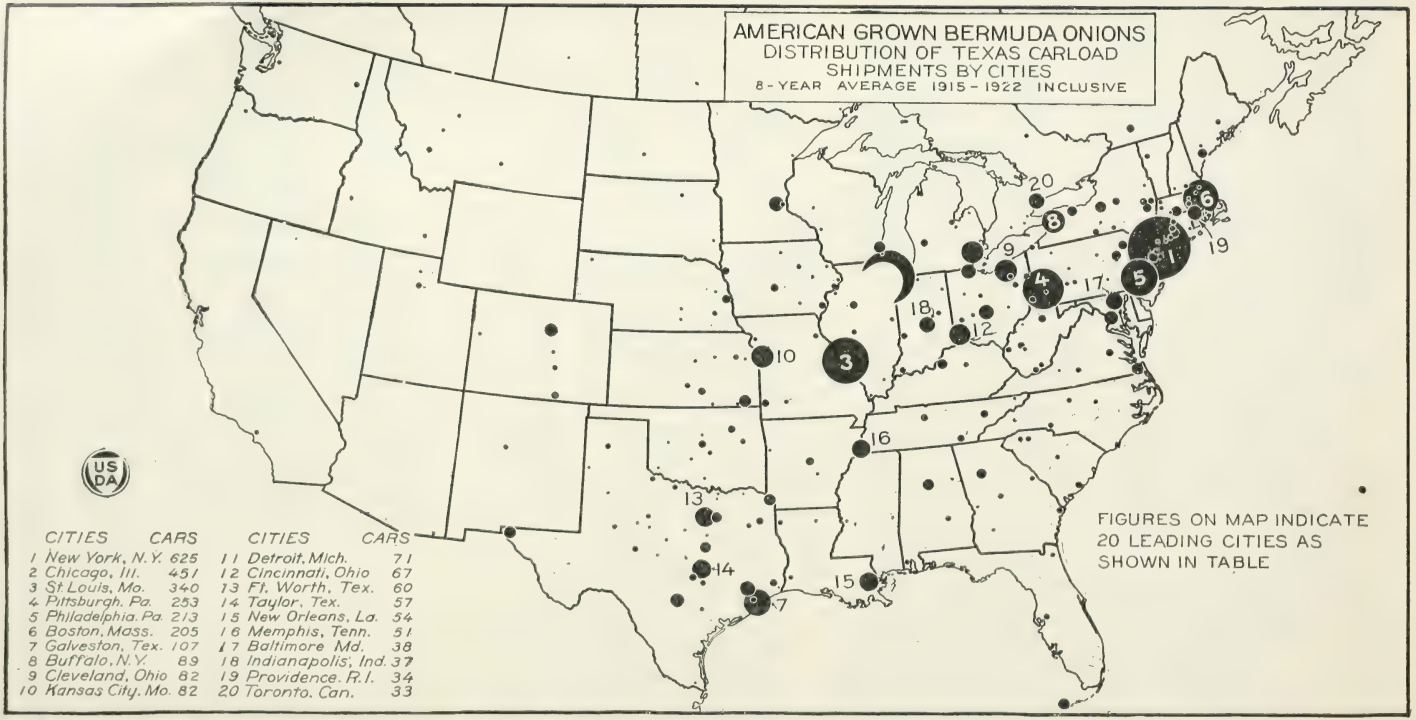
AMERICAN GROWN BERMUDA ONIONS
DISTRIBUTION OF TEXAS CARLOAD SHIPMENTS BY CITIES
8-YEAR AVERAGE 1915-1922 INCLUSIVE
FIGURES ON MAP INDICATE 20 LEADING CITIES AS SHOWN IN TABLE
CITIES CARS
1 New York, N.Y. 625
2 Chicago, Ill. 451
3 St Louis, Mo. 340
4 Pittsburgh, Pa. 253
5 Philadelphia, Pa. 213
6 Boston, Mass. 205
7 Galveston, Tex. 107
8 Buffalo, N.Y. 89
9 Cleveland, Ohio 82
10 Kansas City, Mo. 82
CITIES CARS
11 Detroit, Mich. 71
12 Cincinnati, Ohio 67
13 Ft. Worth, Tex. 60
14 Taylor, Tex. 57
15 New Orleans, La. 54
16 Memphis, Tenn. 51
17 Baltimore Md. 38
18 Indianapolis, Ind. 37
19 Providence, R.I. 34
20 Toronto, Can. 33

FIG. 5.—Carloads of Texas Bermudas are shipped direct to an average of 215 different cities each year. In the past eight years they have been sent to practically every State of the Union and Province of Canada. The distribution is principally to the large cities. More than half of the total shipments have been made to the first six listed above. Consumption of Texas cities is not as large as indicated, for many were diverted to other cities

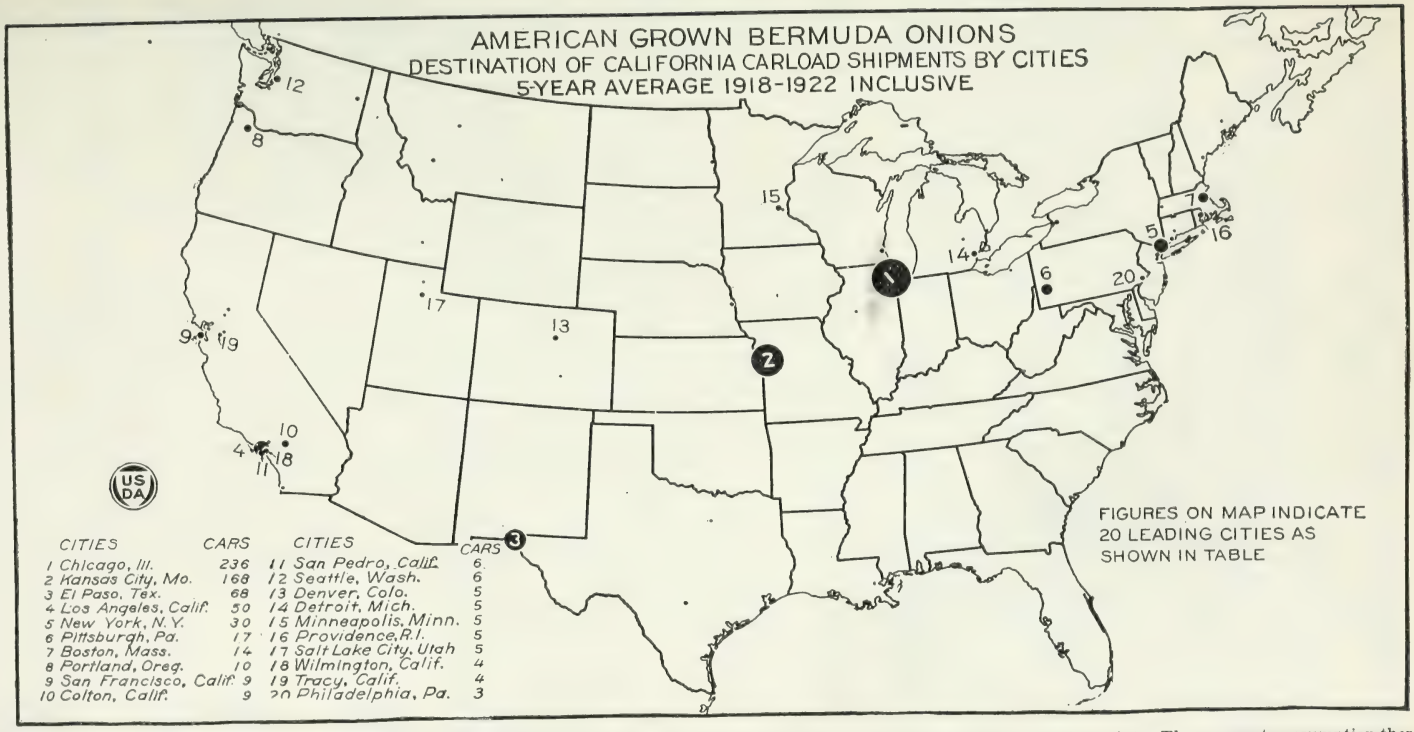
AMERICAN GROWN BERMUDA ONIONS
DESTINATION OF CALIFORNIA CARLOAD SHIPMENTS BY CITIES
5-YEAR AVERAGE 1918-1922 INCLUSIVE
FIGURES ON MAP INDICATE 20 LEADING CITIES AS SHOWN IN TABLE
CITIES CARS CITIES CARS
1 Chicago, Ill. 236
2 Kansas City, Mo. 168
3 El Paso, Tex. 68
4 Los Angeles, Calif. 50
5 New York, N.Y. 30
6 Pittsburgh, Pa. 17
7 Boston, Mass. 14
8 Portland, Oreg. 10
9 San Francisco, Calif. 9
10 Colton, Calif. 9
11 San Pedro, Calif. 6
12 Seattle, Wash. 6
13 Denver, Colo. 5
14 Detroit, Mich. 5
15 Minneapolis, Minn. 5
16 Providence, R.I. 5
17 Salt Lake City, Utah 5
18 Wilmington, Calif. 4
19 Tracy, Calif. 4
20 Philadelphia, Pa. 3

FIG. 6.—Chicago and Kansas City are the principal cities consuming California Bermuda onions. El Paso is important only as a diverting point. The apparent consumption there results from a lack of sufficient diversion records. Most of the crop is sent either to the larger eastern cities or to near-by points in the West. California Bermudas frequently control the Chicago market

The California crop supplies the West, but about half of it finally reaches Chicago and the East. (See fig. 6.) The California crop is diverted in transit to such an extent that it is difficult to obtain figures of final destinations.

The apparent consumption of California stock in Texas is really explained by the number of diversions at El Paso. The apparent consumption at Kansas City is also partly due to reconsignments from that point.

Bermuda shipments are made primarily to the large cities. The 20 cities named in Figure 5 take 73 per cent of the Texas crop. Eighty per cent of all American-grown Bermuda shipments go to cities of 100,000 or more inhabitants, although cities of this size comprise only 26 per cent of the population. The smaller places are supplied by reconsignments or partial carloads, from the larger cities.

Table 5 shows destinations, from 1915 to 1922 for Texas shipments and from 1918 to 1922 for California shipments. A great many diversions are made from such points as St. Louis, Kansas City, and points in Texas for which complete data are not available. Statements regarding final destinations are based on this table, and on a special study of diversions made in 1919.

TABLE 5.—*Geographical distribution of American-grown Bermuda-onion shipments*

[(D) indicates important diversion point]

	1915, Texas	1916, Texas	1917, Texas	1918		1919		1920		1921		1922		Texas, 7-year average	California, 6-year average
				Texas	California	Texas	California	Texas	California	Texas	California	Texas	California		
Alabama	10	21	15	23	----	25	----	15	----	27	----	25	----	22	----
Birmingham	6	12	14	14	----	18	----	12	----	21	----	19	----	16	----
Mobile	2	4	----	3	----	4	----	3	----	3	----	3	----	3	----
Montgomery	2	4	1	----	----	1	----	----	----	2	----	3	----	2	----
Anniston	----	----	----	4	----	----	----	----	----	----	----	----	----	1	----
Dothan	----	----	----	1	----	2	----	----	----	----	----	----	----	----	----
Gladston	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----
Petersburg	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----
Andalusia	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----
Arizona	3	4	6	1	2	----	1	----	1	----	----	----	----	2	1
Douglas	1	----	2	1	----	----	----	----	----	----	----	----	----	1	----
Phoenix	----	1	2	----	----	----	1	----	----	----	----	----	----	----	----
Flagstaff	1	1	1	----	----	----	----	----	----	----	----	----	----	----	----
Prescott	1	----	1	----	----	----	----	----	----	----	----	----	----	----	----
Tucson	----	2	----	----	1	----	----	----	----	----	----	----	----	----	----
Yuma	----	----	----	----	1	----	----	----	1	----	----	----	----	----	----
Arkansas	4	8	8	7	2	2	----	35	----	15	----	6	----	12	----
Little Rock	3	7	6	6	----	1	----	33	----	11	----	5	----	10	----
Fort Smith	1	1	----	----	----	1	----	----	----	2	----	----	----	1	----
Jonesboro	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----
Newport	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----
Pine Bluff	----	----	----	1	----	----	----	1	----	2	----	1	----	1	----
Helena	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----
White River Junction	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----
Earl	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----
California	----	3	16	----	32	----	33	----	103	----	132	17	160	5	92
San Francisco	----	----	9	----	2	----	5	----	7	----	2	4	30	2	9
Los Angeles	----	3	4	----	29	----	26	----	58	----	43	12	95	3	50
Oakland	----	----	1	----	1	----	2	----	1	----	----	1	1	----	1
Sacramento	----	----	1	----	----	----	----	----	----	----	----	----	5	----	1
San Diego	----	----	1	----	----	----	----	----	2	----	2	----	2	----	1
Roseville	----	----	----	----	----	----	----	----	8	----	----	----	8	----	3

TABLE 5.—*Geographical distribution of American-grown Bermuda-onion shipments*—Continued

	1915, Texas	1916, Texas	1917, Texas	1918		1919		1920		1921		1922		Texas, 7-year average	California, 5-year average
				Texas	California	Texas	California	Texas	California	Texas	California	Texas	California		
California—Contd.															
Elmonte									6						1
Stockton									3						1
Colton									2		33		9		9
Stanford									2						
El Centro									1						
San Pedro											31				6
Long Beach											1				
Wilmington											20				4
Fresno													1		
Gardena													1		
Tracy									13				8		4
Colorado	24	37	50	25	8	12	8	32	7	37	3	45	5	34	6
Denver	18	21	36	19	4	9	7	23	7	31	3	17	5	22	5
Trinidad	2	6	6	3		2	1	2		3		24		7	
Pueblo	4	6	5	1	3	1		6		1		3		3	1
Colorado Springs		3	2	1	1			1		1				1	
Grand Junction		1	1	1						1		1		1	
Connecticut	3	22	38	16	4	13	1	26	13	37	1	22		25	4
Waterbury	1	2	10	7	1	6		4	1	5	1	4		5	1
New Haven		6	11	1	1	1		13	1	21		10		9	
Hartford		5		7	1	3				9		5		4	
Bridgeport	1	5	3	1		1		5	10	1				2	2
New London		1	4		1	2		1		1		1		1	
Stamford			7						1			2		1	
Norwich	1	1	1												
New Britain		2													
Danbury			1					1							
Rockville			1												
Meriden								2							
South Norwalk							1								
Delaware						1		1							
Wilmington						1									
Dover								1							
District of Columbia	4	12	23	23	2	25		39	2	34		18	1	25	1
Washington	4	12	23	23	2	25		39	2	34		18	1	25	1
Florida	1	7	16	3		46		47		35	1	22		25	
Key West			13			37		35		22		10		17	
Jacksonville		2	2	3		2				1		4		2	
Tampa		3	1			5		8		11	1	7		5	
Pensacola	1	2				2		3		1		1		1	
Ocala								1							
Georgia	10	37	27	39		29		26		50		26		33	
Atlanta	5	20	16	23		15		14		34		14		19	
Savannah	2	7	5	7		5		3		5		2		5	
Macon	1	6	2	4		3		5		3		2		4	
Augusta	1	3	3	5		2		1		5		3		3	
Columbus						3		2		3				1	
Rome	1	1													
La Grange			1												
Albany						1		1				5		1	
Idaho		2	5	2	1		2	1	3	1	1	1	1	2	2
Boise		1	3	1			1	1	1	1		1		1	
Pocatello		1	2	1	1		1		2		1		1	1	1
Illinois	77	432	748	300	123	265	80	671	464	401	254	463	267	469	238
Chicago	74	414	728	288	120	261	80	643	460	381	254	442	267	451	236
Peoria	1	7	7	3		3		3	3	15		9		7	1
Springfield		8	7	5	2			1		2		4		4	
Cairo	1	2	1					2						1	
Danville	1		1			1		9		1		1		2	

TABLE 5.—*Geographical distribution of American-grown Bermuda-onion shipments*—Continued

	1915, Texas	1916, Texas	1917, Texas	1918		1919		1920		1921		1922		Texas, 7-year average	California, 5-year average
				Texas	California	Texas	California	Texas	California	Texas	California	Texas	California		
Illinois—Continued.															
Marion				2											
Rockford					1					1					
Champaign				1								1			
Freeport			1									1			
Granville		1													
Bloomfield										1					
Rockdale			1												
Rockport			1												
Joliet												1			
Decatur				1								1			
Rock Island			1					2				3		1	
Mattoon								1							
Hawthorne								1							
Matteson								2							
Newton								1							
St. Joseph								1							
Hartford								5						1	
Streator									1						
Indiana	17	44	78	32		40	1	55		46		69		52	
Indianapolis	13	31	62	25		31		33		38		42		37	
Evansville	2	7	5	3				7		1		10		5	
Terre Haute		6	5	2		2	1	9		4		8		5	
Muncie			2			7		2		1		4		2	
Fort Wayne			1	2				1						1	
South Bend	2		1					2		1		2		1	
Logansport			1					1		1					
New Castle			1												
Bedford												1			
Kokoma												2			
Iowa	29	38	38	16	1	23	2	31	3	22		26	2	28	2
Des Moines	9	12	7	3		8	2	10	2	8		6	2	8	1
Sioux City	7	7	11	1		7		4	1	5		6		6	
Burlington	4	5	5	2		2		3		6		4		4	
Davenport	2	3	5	2		2		4		1		3		3	
Waterloo	3	4		2				3						1	
Dubuque		3	4	1								2		1	
Mason City	1	1	3	1				3		1				1	
Ottumwa	2	2	2											1	
Cedar Rapids	1		1	2	1			1		1		1		1	
Clinton		1		2		2								1	
Green Falls						2									
Moulton								1							
Esterville												1			
Parkersburg								1							
Oelwein												2			
Spencer								1							
Council Bluffs												1			
Kansas	27	32	27	25	3	13		106		33		25		37	1
Wichita	19	18	9	5	2			9		7		5		8	
Hutchison	2	4	7	3	1	2		2				2		3	
Topeka	3	5	5	3		1		8				7		4	
Parsons (D)	1		2			8		86		14		6		17	
Salina	2	1	2	2				1		2				1	
Lawrence				5		1				1				1	
Coffeyville		2		1						1		1		1	
Winfield			1	2											
Dodge City				1		1									
Junction City				2								2		1	
Arkansas City				1						8				1	
Leavenworth			1												
Hayes												1			
Pittsburg		1										1			
Wellington		1													
Kentucky	4	12	16	13		19		29		14		53	1	22	
Louisville	4	8	13	10		15		25		12		51		19	
Lexington		4	3	3		4		4		2		2	1	3	

TABLE 5.—*Geographical distribution of American-grown Bermuda-onion shipments*—Continued

	1915, Texas	1916, Texas	1917, Texas	1918		1919		1920		1921		1922		Texas, 7-year average	California, 5-year average
				Texas	California	Texas	California	Texas	California	Texas	California	Texas	California		
Louisiana	6	14	30	8	3	105	-----	69	-----	45	-----	146	-----	60	1
New Orleans (D)	4	4	28	6	3	104	-----	61	-----	36	-----	136	-----	54	1
Shreveport	1	6	-----	-----	-----	1	-----	2	-----	7	-----	7	-----	3	-----
Lake Charles	1	1	1	2	-----	-----	-----	4	-----	2	-----	1	-----	2	-----
Monroe	-----	2	-----	-----	-----	-----	-----	1	-----	-----	-----	1	-----	1	-----
Alexandria	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Baton Rouge	-----	-----	1	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----
Bogalusa	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----
Maine	6	22	30	19	7	12	2	18	6	16	5	15	-----	19	4
Portland	3	10	19	15	4	7	2	15	1	13	2	10	-----	13	2
Bangor	2	8	5	2	2	3	-----	2	2	2	2	3	-----	4	1
Rockland	-----	2	4	1	-----	2	-----	-----	1	-----	1	-----	-----	1	-----
Auburn	1	2	1	1	1	-----	-----	1	1	1	-----	2	-----	1	-----
Presque Isle	-----	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Bristol	-----	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----
Maryland	6	28	50	34	-----	39	-----	39	-----	38	-----	53	4	40	1
Baltimore	6	24	49	33	-----	37	-----	38	-----	35	-----	53	4	38	1
Cumberland	-----	4	1	1	-----	-----	-----	1	-----	3	-----	-----	-----	1	-----
Camp Meade	-----	-----	-----	-----	-----	2	-----	-----	-----	-----	-----	-----	-----	-----	-----
Massachusetts	82	283	319	130	14	157	1	272	49	248	12	241	5	236	16
Boston	66	248	268	107	10	142	1	231	44	215	10	227	5	205	14
Springfield	-----	16	9	12	-----	7	-----	27	1	16	-----	9	-----	14	-----
Worcester	2	6	6	6	2	4	-----	-----	1	2	2	-----	-----	3	1
New Bedford	5	2	8	1	1	2	-----	1	1	-----	-----	1	-----	2	1
Pittsfield	1	2	4	1	-----	2	-----	3	-----	3	-----	1	-----	2	-----
North Adams	-----	1	3	3	-----	-----	-----	1	-----	1	-----	2	-----	2	-----
Lawrence	2	1	3	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	1	-----
Lowell	1	2	3	-----	-----	-----	-----	2	1	2	-----	1	-----	1	-----
Fitchburg	3	3	-----	-----	1	-----	-----	-----	-----	4	-----	-----	-----	1	-----
Fall River	-----	-----	5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	-----
Holyoke	1	1	1	-----	-----	-----	-----	3	-----	1	-----	-----	-----	1	-----
South Deerfield	-----	-----	3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Haverhill	1	-----	1	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----
Lynn	-----	-----	2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Bedford	-----	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Brockton	-----	-----	1	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----
Charlestown	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
New Brunswick	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----
Deerfield	-----	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Watuppa	-----	-----	-----	-----	-----	-----	-----	3	-----	1	-----	-----	-----	1	-----
Plainfield	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----
Michigan	11	77	123	58	-----	61	-----	108	19	57	-----	108	9	85	6
Detroit	5	62	95	53	-----	54	-----	98	19	49	-----	88	6	71	5
Grand Rapids	5	11	15	2	-----	3	-----	2	-----	5	-----	9	-----	7	-----
Bay City	1	3	7	3	-----	4	-----	4	-----	1	-----	6	-----	4	-----
Saginaw	-----	1	4	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	1	-----
Pontiac	-----	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Sault St. Marie	-----	-----	1	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----
Kalamazoo	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	2	-----	-----	-----
Milwaukee Junction	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----
Muskegon	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----
Flint	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	3	-----	1
Lansing	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	2	-----	-----	-----
Menominee	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----
Battle Creek	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----
Minnesota	5	42	49	22	12	28	1	48	11	25	5	49	2	38	6
Minneapolis	3	38	42	19	11	25	1	42	7	21	3	38	2	32	5
St. Paul	1	3	7	3	1	-----	-----	4	3	3	1	7	-----	4	1
Duluth	-----	1	-----	-----	-----	3	-----	1	1	1	1	1	-----	1	-----
Winona	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Mankato	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	2	-----	-----	-----
Brackenridge	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----

TABLE 5.—*Geographical distribution of American-grown Bermuda-onion shipments*—Continued

	1915, Texas	1916, Texas	1917, Texas	1918		1919		1920		1921		1922		Texas, 7-year average	California, 5-year average
				Texas	California	Texas	California	Texas	California	Texas	California	Texas	California		
Mississippi	2	4	2	8		4		2		3		4		4	
Meridian	2	1		4		1				2		1		1	
Jackson		2				3		2						1	
Hattiesburg		1		3								1		1	
Vicksburg			2	1						1		2		1	
Missouri	403	588	539	488	48	243	81	455	228	593	223	151	265	437	169
St. Louis (D)	344	468	421	428	1	193		367	1	458	1	47	2	340	1
Kansas City (D)	53	92	104	49	47	44	81	68	227	127	222	92	263	82	168
Joplin	5	16	5	8		6		6		4		9		8	
St. Joseph		6	3	3										2	
Springfield	1	4	2							4		2		2	
Hannibal		2	3					13						3	
Jefferson City			1									1			
Higbee								1							
Montana	11	15	8	7	13		3	9	5	3	4	6	3	7	6
Butte	5	4	6	3	7		3	3	4	2	2	3	1	3	3
Billings	2	5		1	1			1			1	1	1	1	1
Great Falls	2	2	1	2	2			3	1	1	1	1	1	1	1
Helena	1	3		1								1		1	
Kalispell		1	1												
Lewistown	1														
Miles City					1			2							
Harve					2										
Nebraska	9	25	28	9	1	12	1	25	7	7	1	19	1	18	2
Omaha	6	15	18	6		8	1	15	7	5	1	9		11	2
Lincoln	1	5	5	3		2		6		1		2		3	
Hastings	1	2	2					1		1		2		1	
Fremont		3	1											1	
Alliance			1												
Crawford	1				1	2						2	1	1	
Grand Island			1					3				4		1	
New Hampshire	3	1	13		1	5		3		4				4	
Manchester	2		5		1	5		3		4				2	
Keene	1	1	5											1	
Concord			1												
Nashua			1												
Woodsville			1												
New Jersey	4	6	23	11		30	1	29	3	27	4	10	9	19	3
Newark	4	6	19	11		20		20	1	25	1	7		15	
Jersey City						7		6		2	3	3	9	3	2
Camp Dix						2									
Phillipsburg			2												
Dumont						1									
New Brunswick			1												
Passaic			1					2							
Elizabeth								1							
Bayonne							1		2						1
New Mexico	3	2	4	3		1		2		1	1	2	1	2	
Albuquerque	3	2	4	2		1		2		1		1	1	2	
Gallup												1			
Roswell				1											
Raton											1				
New York	751	438	1,082	495	16	483	3	877	62	975	20	1,201	69	793	34
New York City	739	368	810	408	16	347	3	626	53	810	14	1,009	64	625	30
Buffalo	8	28	130	47		88		123	4	102	6	103	5	89	3
Rochester		3	48	14		12		35	1	4		19		19	
Albany		9	15	6		10		20		16		5		12	
Syracuse		5	12	9		7		22	2	18		22		14	
Utica	1	2	13	2		5		16				11		7	
Schenectady		6	10	3		2		8		5		11		6	
Troy	1	9	9	2				5		6		3		5	

TABLE 5.—*Geographical distribution of American-grown Bermuda-onion shipments*—Continued

	1915, Texas	1916, Texas	1917, Texas	1918		1919		1920		1921		1922		Texas, 7-year average	California, 5-year average
				Texas	California	Texas	California	Texas	California	Texas	California	Texas	California		
New York—Contd.															
Elmira	2	3	10	1		4		10		4		5		5	
Brooklyn		3	9						1					2	
Glens Falls			4	1				1	1	2		1		1	
Ithaca		2		1		1		2				1		1	
Camp Mills						3									
Jamestown			3												
Camp Upton						2									
Granger			2												
Ontario			1			2									
Watertown			1	1				6		5		1		2	
Johnson City			1												
Ogdensburg			1									4		1	
Peekskill			1												
Poughkeepsie			1												
Yonkers			1												
Saranac Lake								1							
Brownsville								1							
Olean										2		1			
Fulton								1							
Binghamton										1		2			
Port Morris												3			
North Carolina			9	4		3		14		28		18		11	
Charlotte			2	3		2		4		9		5		4	
Greensboro			4					2		10		4		3	
Gastonia												1			
Durham			1												
Asheville			2	1		1		3		3		1		2	
Raleigh								5		3		3		2	
Rocky Mount												2			
Winston-Salem										3					
Wilmington												2			
North Dakota				3	4				3	2	2	4	1	1	2
Minto										1					
Minot				2											
Bismarck					2				1		2	1		1	
Fargo					1				1	1		2	1		1
Grand Forks				1	1							1			
Mandan									1						
Ohio	43	181	330	168		197	1	324	11	227		227	2	236	3
Cleveland	4	42	121	58		74		99	6	96		84	1	82	1
Cincinnati	21	58	84	51		63		81		60		74	1	67	
Columbus	9	44	44	24		29	1	34	3	26		24		32	1
Toledo	4	20	40	13		20		71		23		19		29	
Canton	2	3	8	3		5		7		5		3		5	
Youngstown	1	2	6	5		4		6	2	6		2		4	
Dayton		5	6	4		2		3		1		8		4	
Akron		1	7	3				11		4		2		4	
Marion	2		7							1		3		2	
Springfield		2	3	3				4		1		3		2	
Lima		2	1	2				1				2		1	
Zanesville		1		2				1		3		2		1	
Cambridge		1	1					1							
Norwalk										1					
Ashtabula			1												
Steubenville			1												
Warren								1							
Portsmouth								3							
Sidney								1							
Delphos												1			
Oklahoma	9	35	33	17		12		27		23	1	30		25	
Oklahoma City	3	15	7	7		4		7		7		10		8	
Tulsa	3	9	10	6		3		5		8		8		7	
Muskogee		4	1	1		2		7				5		3	
Shawnee	2	2	3			1		2		6		2		2	
Altus	1		1	1		1						2		1	
Ardmore		1	3					1						1	

TABLE 5.—*Geographical distribution of American-grown Bermuda-onion shipments*—Continued

	1915, Texas	1916, Texas	1917, Texas	1918		1919		1920		1921		1922		Texas, 7-year average	California, 5-year average
				Texas	California	Texas	California	Texas	California	Texas	California	Texas	California		
Oklahoma—Contd.															
Chickasha		1	2	1				1						1	
Clinton		1	1			1				1				1	
Guthrie		1	1									2		1	
McAlester		1	1					1							
Enid			1					1				1			
Hobard			1												
Lawton				1											
Okmulgee			1												
Ada								1							
Blackwell								1							
Woodward										1					
Oregon		1	1	1			3		24		8	3	15	1	10
Portland		1	1	1			3		24		8	3	15	1	10
Pennsylvania	92	477	753	483	2	325		481	54	490	7	546	43	508	21
Pittsburgh	41	243	389	259	2	171		209	47	239	7	260	29	253	17
Philadelphia	48	194	304	196		115		229	5	211		244	10	213	3
Wilkes-Barre		14	17	7		21		8		6		17	1	13	
Scranton		13	12	6		11		17		17		8	1	12	
Erie		4	7	2		2		5		4		8	1	5	
Altoona	1	1	1	4		5		4	1	2		5		3	
Warren		1	5	3										1	
Johnstown			4	2				2		5		1		2	
Williamsport	1	2	2	1				2	1			2		1	
Hazleton		1	4											1	
McKeesport										4				1	
Dubois	1	1	1	1				2						1	
Bradford			1	1				1					1		
Harrisburg		2						1				1		1	
Ashville				1											
Bethlehem			1												
Driscoll										1					
Brownsville			1												
Greensburg										1					
Easton			1												
Philipsburg		1													
Punxsutawney			1												
Shamokin			1												
Spartansburg			1												
Charleroi								1							
Rhode Island	9	17	80	15	3	29	1	28	21	37		32	1	34	5
Providence	9	17	78	14	3	29	1	28	21	37		32	1	34	5
Woonsocket			2	1											
South Carolina	6	14	12	28		13		27		19		4		17	
Charleston	3	7	4	9		11		14		7				7	
Spartanburg	2	4	4	9		2		5		3		1		4	
Columbia	1	3	2	7				2		2		1		2	
Greenville			2	3				5		5		2		2	
Greenwood								1							
Piedmont										2					
South Dakota	1	2	5	1	1	2	1	2		2		1		2	
Aberdeen	1		2			1	1			1		1		1	
Sioux Falls		2	2		1			2						1	
Deadwood				1		1				1					
Mitchell			1												
Tennessee	14	40	41	35		22		263		48		48		71	
Memphis	5	16	20	15		12		242		24		27		51	
Knoxville	6	9	7	7		4		7		10		7		7	
Chattanooga	1	8	8	5		5		8		6		2		6	
Nashville	2	5	5	7		1		4		8		11		6	
Bristol		2	1					2						1	
Clarksville				1											
Johnson City												1			

TABLE 5.—*Geographical distribution of American-grown Bermuda-onion shipments*—Continued

	1915, Texas	1916, Texas	1917, Texas	1918		1919		1920		1921		1922		Texas, 7-year average	California, 5-year average
				Texas	California	Texas	California	Texas	California	Texas	California	Texas	California		
Texas	771	998	505	233	59	172	97	596	44	304	18	150	140	423	72
Taylor (D)	656	72	79	11	-----	-----	-----	167	-----	68	-----	-----	-----	57	-----
Galveston (D)	8	492	153	1	-----	66	-----	3	-----	28	-----	5	-----	107	-----
Fort Worth (D)	6	75	117	48	-----	26	-----	99	-----	33	-----	23	7	60	1
San Antonio (D)	-----	94	21	17	-----	1	-----	13	-----	27	-----	24	9	28	2
El Paso (D)	8	35	31	17	59	13	97	18	43	19	18	11	124	21	68
Dallas	40	21	8	12	-----	11	-----	27	-----	11	-----	19	-----	16	-----
Houston	7	23	1	28	-----	6	-----	92	1	42	-----	26	-----	31	-----
Waco	3	24	18	13	-----	4	-----	29	-----	9	-----	15	-----	16	-----
Longview (D)	-----	32	-----	16	-----	-----	-----	-----	-----	1	-----	-----	-----	7	-----
Texarkana (D)	8	24	6	8	-----	-----	-----	62	-----	19	-----	-----	-----	17	-----
Beaumont	2	11	11	8	-----	4	-----	10	-----	5	-----	11	-----	9	-----
Texas City (D)	-----	-----	-----	-----	-----	29	-----	-----	-----	-----	-----	-----	-----	4	-----
Smithville	-----	26	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	4	-----
Amarillo	7	6	6	5	-----	1	-----	4	-----	4	-----	2	-----	4	-----
Austin	3	5	9	-----	-----	1	-----	21	-----	5	-----	-----	-----	6	-----
San Angelo	2	3	3	5	-----	2	-----	3	-----	5	-----	2	-----	3	-----
Stamford	-----	6	3	5	-----	-----	-----	2	-----	1	-----	-----	-----	2	-----
Big Springs	2	5	3	2	-----	-----	-----	1	-----	2	-----	-----	-----	2	-----
Cuero	-----	-----	3	9	-----	-----	-----	2	-----	3	-----	-----	-----	2	-----
Quanah	2	7	1	1	-----	1	-----	1	-----	-----	-----	-----	-----	2	-----
Wichita Falls	4	4	-----	3	-----	1	-----	2	-----	5	-----	3	-----	3	-----
Farwell	1	3	4	2	-----	-----	-----	1	-----	-----	-----	-----	-----	1	-----
Dennison	3	4	1	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	-----
Lubbuck	1	1	4	3	-----	-----	-----	1	-----	-----	-----	1	-----	1	-----
Tyler	1	4	3	1	-----	-----	-----	1	-----	2	-----	2	-----	2	-----
Hillsboro	2	4	-----	1	-----	-----	-----	1	-----	-----	-----	-----	-----	1	-----
Sweetwater	3	3	-----	-----	-----	1	-----	1	-----	2	-----	-----	-----	1	-----
Paris	1	4	1	-----	-----	-----	-----	-----	-----	2	-----	3	-----	1	-----
Brady	1	-----	2	-----	-----	2	-----	-----	-----	-----	-----	-----	-----	1	-----
Dublin	-----	3	1	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	-----
Lampasas	-----	-----	2	1	-----	1	-----	-----	-----	-----	-----	-----	-----	1	-----
Cisco	-----	-----	-----	2	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----
Midland	-----	1	2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Abilene	-----	2	1	-----	-----	-----	-----	4	-----	-----	-----	1	-----	1	-----
Ballinger	-----	-----	2	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----
Brownwood	-----	-----	1	1	-----	-----	-----	1	-----	1	-----	-----	-----	1	-----
Gainesville	-----	2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
New Braunfels	-----	-----	2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Pearsalls	-----	-----	1	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Port Arthur	-----	-----	-----	2	-----	-----	-----	3	-----	2	-----	-----	-----	1	-----
San Benito	-----	-----	-----	2	-----	-----	-----	3	-----	1	-----	-----	-----	1	-----
Temple	-----	-----	-----	2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Brownsville	-----	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Childress	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Eastland	-----	-----	-----	-----	-----	1	-----	2	-----	-----	-----	-----	-----	-----	-----
Harlingen	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Llano	-----	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Orange	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Palestine	-----	-----	1	-----	-----	-----	-----	2	-----	-----	-----	-----	-----	-----	-----
Pittsburgh	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Plainview	-----	-----	1	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----
San Marcos	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Sherman	-----	-----	1	-----	-----	-----	-----	2	-----	-----	-----	1	-----	1	-----
Uvalde	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Burkburnette	-----	-----	-----	-----	-----	-----	-----	1	-----	1	-----	-----	-----	-----	-----
Caro	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----
Clebourne	-----	-----	-----	-----	-----	-----	-----	3	-----	-----	-----	-----	-----	-----	-----
Dallart	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----
Jacksonville	-----	-----	-----	-----	-----	-----	-----	5	-----	-----	-----	-----	-----	1	-----
Milano	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----
Moberly	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----
Ranger	-----	-----	-----	-----	-----	-----	-----	1	-----	1	-----	-----	-----	-----	-----
Valley Junction	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	-----
Yoakum	-----	-----	-----	-----	-----	-----	-----	2	-----	-----	-----	-----	-----	-----	-----
Lockhart	-----	-----	-----	-----	-----	-----	-----	-----	-----	2	-----	-----	-----	-----	-----
Marfa	-----	-----	-----	-----	-----	-----	-----	-----	-----	2	-----	-----	-----	-----	-----
Corpus Christi	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	-----	-----	-----
Utah	2	4	8	1	4	2	6	3	11	-----	2	6	10	4	7
Salt Lake	1	2	7	1	4	2	4	2	7	-----	1	6	10	3	5
Ogden	1	2	1	-----	-----	-----	2	1	4	-----	1	-----	-----	1	1

TABLE 5.—*Geographical distribution of American-grown Bermuda-onion shipments*—Continued

	1915, Texas	1916, Texas	1917, Texas	1918		1919		1920		1921		1922		Texas, 7-year average	California, 5-year average
				Texas	California	Texas	California	Texas	California	Texas	California	Texas	California		
Vermont	1	3	7	2		1		3				7		3	
Burlington	1	2	5	2				2				7		3	
Barre		1	2												
White River Junction						1		1							
Virginia	10	23	40	30		32		33		27		30		31	
Norfolk	7	13	25	19		21		17		10		12		17	
Richmond		5	10	4		4		13		10		12		8	
Lynchburg	3	3	3	3				1		5		3		3	
Newport News						6		1						1	
Roanoke		1	2	1				1		2		3		1	
Alexandria				3											
Logan						1									
Petersburg		1													
Washington	4	10	9	4	4		6		13	3	10	11	13	5	9
Spokane	3	5	6	3					2	1	4	6	2	3	2
Seattle	1	5	3	1	3		5		10	2	4	5	9	2	6
Lowell					1										
Tacoma							1				1		2		1
Yakima									1						
Pasco											1				
West Virginia	14	24	59	34		9		26		23		45		31	
Clarksburg	2	7	7	11		2		7		5		7		7	
Charleston	8	4	9	7				2		9		12		6	
Bluefield	1	4	13	3				2		1		6		4	
Williamson										1		1			
Huntington		5	5	6		1		5				8		4	
Morgantown										1					
Hansford			15	1										2	
Wheeling	2	2	5	3		3		4		2		6		4	
Hinton		2	3	3		3		3		4		2		3	
Parkersburg			2									3		1	
Fairmont	1							1							
Bloomfield								1							
Princeton								1							
Wisconsin	6	29	42	9		12		17	8	20	1	37	3	24	2
Milwaukee	5	28	39	7		12		13	6	16	1	34	3	21	2
La Crosse	1	1	2									3		1	
Menomonie										1					
Eau Claire				2				1		1				1	
Racine			1					1		2				1	
Green Bay								1							
Marshfield								1							
Beloit									2						
Wyoming			1		1			1	1			1			
Cheyenne			1		1							1			
Kemerer								1							
Casper									1						
Canada	8	40	106	36	2	38		74	2	47	1	53	11	56	3
Toronto	4	27	57	20		23		49		27	1	27	2	33	1
Montreal	3	3	15	3		10		10		9		9		8	
Ottawa		1	4	1		2		2						1	
Port Arthur		1	5	2						1		1		1	
Winnipeg			5	3	1			1	1			5		2	
London		1	4	2				1				2		1	
North Bay		2	2	3				1		1		3		2	
Hamilton			4	1				2				1		1	
Brantford			2			1				1		1		1	
Ontario			1			2		2					1	1	
Quebec		1	2					2				2		1	
Regina			2		1					1					
Saskatoon		1		1						1					
Kingston			1					1							

TABLE 5.—*Geographical distribution of American-grown Bermuda-onion shipments*—Continued

	1915, Texas	1916, Texas	1917, Texas	1918		1919		1920		1921		1922		Texas, 7-year average	California, 5-year average
				Texas	California	Texas	California	Texas	California	Texas	California	Texas	California		
Canada—Continued.															
Yorktown		1								1					
McKinnon's															
Moose Jaw		1								3				1	
New London	1														
Vancouver													3		1
New York			1												
Prince Albert		1													
Edmonton			1							1			1		
Barrie								1							
Monneton								1							
Stratford								1							
Sudbury												1			
Rockland										1					
Calgary									1				4		1
Monoton												1			
Cuba				4		21				26		42		13	
Havana				4		21				26		42		13	

A more widespread primary distribution of carload shipments among the smaller places would probably result in moving the entire crop more profitably. In seasons of unusually large crops or low prices distribution is more general. The average number of cities to which shipments of Texas Bermudas are made is 215, California Bermudas 52, all-American Bermudas 232; but in the short-crop season of 1919, the respective primary destinations were only 154, 29, and 167, as compared with 262, 77, and 293 in the heavy-crop year 1920. The difference in number of cities to which cars were destined was due to a more thorough supply of the markets within the same radius. So long as prices received are satisfactory, shippers send cars in accustomed directions, and only when forced to do so by an unusually large crop or low prices do they make an unusual effort to find new consuming centers.

Cities of 25,000 population are usually considered large enough to consume Bermuda onions in carload quantities. But distribution of carloads to cities of this size is not so general as is desirable. According to the 1920 census, there were 287 incorporated places in the United States having a population of 25,000 or more. Of these 54 were located either in metropolitan areas or so close to the larger cities that shipment for the smaller places would ordinarily be recorded as destined to the larger ones. Of the remaining 233 cities, 156 received an average of at least 1 car of Texas or California Bermudas annually, 30 cities received an occasional car but not enough to average even 1 car a year, and 47 cities did not receive a single car of Texas or California Bermudas during the entire 8-year period according to primary destinations as given by railroad reports.

Some towns of less than 25,000 population are markets for Bermuda onions in carloads. Out of 279 towns of less than 25,000 population that received carloads of either Texas or California Bermudas during the 8-year period, 52 per cent received a car for only 1 year,

15 per cent for 2 years, 12 per cent for 3 years, 6 per cent for 4 years, and 15 per cent for 5 years or more. Evidently there is a large undeveloped market among towns of less than 25,000 population.

Although Bermuda onions are grown in the South, the distribution is primarily to the North. The per capita supply in 1920 was nearly twice as heavy for the Northern as for the Southern States and if final destinations were obtainable, the proportion would probably be greater, for many cars are here recorded as destined to points in Texas or Louisiana which eventually reach northern points.

For the entire United States, the per capita supply of all-American-grown Bermuda onions was 1.30 pounds in 1920. The relation of Bermuda primary distribution to population by sections and per capita supply is shown in Table 5.

Domestic Bermuda onions have been shipped directly to points in every State except Nevada, according to railroad reports, to most of the Provinces of Canada, and to Cuba. They have been shipped directly to 480 different cities in the United States and 29 in Canada; but the distribution has been more or less sporadic to the smaller places, because shippers were afraid that other shipments might arrive at the same time and glut the local market. The leading markets seem safer when a shipper must guess what the other man is likely to do.

The United States Department of Agriculture has maintained an office in the Texas producing territory each season to publish daily the destinations and diversions as given by railroad officials. This information enables a grower or shipper to know most of the movement far enough ahead so that he can divert his car when the original destination would apparently receive too great a supply. A still more effective method has been in operation whereby the principal shippers meet daily in the office of the representative of the department and each man present states the number of cars he intends to ship and their destination. The expected destinations are then entered on a blackboard and resulting changes made by the shippers are entered.

METHODS OF SALE

Several methods of marketing are open to the Texas grower, depending upon his acreage, his financial strength, his relations with the trade locally and at the terminal markets, his knowledge of market conditions, and his judgment as to the method most profitable at a given time.

SALE THROUGH DEALER WHO HAS FINANCED THE GROWER

1. The dealer advances about $40 an acre to the grower to aid him in raising the crop, under an agreement by which the dealer is given the refusal of every car at the market price on the day loaded. The dealer takes the amount of the loan out of the first cars marketed. Interest may or may not be charged, depending upon the season and locality. In addition, the dealer takes either a given amount per crate or a commission on the total sales for his services in financing and selling the crop.

2. In a similar arrangement, the farmer grows and harvests the crop, the dealer finances and sells it and the net receipts are divided between them in an agreed ratio.

Neither of these methods of sale is now used as much as formerly in the Laredo section, because more of the growers are now able to finance themselves. However, more than half of the upper counties acreage was financed by dealers in 1922.

SALES BY CONTRACT

The grower may contract to sell his crop to a speculator several months before harvest at an agreed price per crate for stock of a given quality, or he may wait until harvest begins and then sell the entire crop on similar terms. When onions are sold before harvest they are said to be "contracted."

CASH SALES AT SHIPPING POINT

1. A few of the very small growers sell on the wagonload basis "cash at car door," but this method is not general.

2. Most growers load straight carloads of their own stock. These are then sold to local buyers as loaded, for cash; or to distant buyers, usually on a bank guarantee. In the latter case, the buyers' bank guarantees the account. The onions become the property of the buyer when loaded in the car, on the shipper's switch. Such sales are generally described as "f. o. b. cash track" or "f. o. b. cash track to growers." The latter term is used to describe those sales made in carloads by growers as distinguished from dealers' sales. A differential sometimes exists between the two, especially if the individual grower is located where there is little competition between dealers.

SALES THROUGH AN AGENT ON CONSIGNMENT

1. If a car is sold through a commission house in the city it is said to be "sold for the account" of the growers. The commission house deducts from the money received for the car a percentage of the gross receipts for commission, the transportation charges, and other expenses, such as cartage. The balance is remitted to the grower.

2. A grower may also sell on a brokerage or commission basis through a local dealer. This method is generally used when the dealers decline to take the risk of outright purchase, because of either market conditions or the condition of the stock.

3. If the grower is a carlot shipper, he may ship to a broker who will sell the onions for the grower at destination for a uniform charge per car.

A grower usually sells through a broker or commission house when he believes the local offers are lower than he can net by assuming the costs and risks of transportation and market declines.

COOPERATIVE SALES

In 1913 and the years preceding, an association of the growers handled most of the Texas crop by cooperative methods, the sales manager of the association distributing the carloads to the country's markets from his office in San Antonio and selling very largely f. o. b. destination. After this association went out of existence very little cooperative selling was done for several years except in cases where small growers informally cooperated by assembling a carload to be sold in any of the customary ways. During the 1920 and 1921 seasons cooperative associations were organized in the

Mission and the Asherton sections, but did not handle any large portion of the Texas crop.

In July, 1922, under the auspices of the farm bureau, an association of growers was organized, which established seven local associations for marketing the onions of the upper counties. This association marketed most of the crop from the upper counties section in 1923. The associated growers were also able to secure $50 an acre for members' production purposes and to buy $80,000 worth of crates, on time, by means of association notes. A force of field inspectors was employed which succeeded in improving the quality of the grading and pack to such an extent that prices were often secured 25 cents per crate higher than on onions handled through other channels. A firm was selected as sales agent that had previously handled a large percentage of the onions from this section.

SALES DIRECT TO WHOLESALE DEALERS

Some of the larger growers sell direct to dealers in various cities. Sometimes the car is started toward a diversion point (usually Taylor or Texarkana, Tex., or St. Louis) and sold en route by telegraph. Such a car is said to be "rolled unsold." The price and terms are fixed by telegraphic offer and acceptance. If satisfactory "wire orders" are not forthcoming, the car may be sold at destination. In some cases the car is sent direct to a carlot receiver or wholesale merchant who has bought the car for a certain price, subject to inspection at destination.

If the car is shipped "draft attached," the bill of lading and a sight draft for the amount of the invoice are sent to a bank in the buyer's city and he must pay the amount of the draft before he can get the car. If the buyer's reputation is satisfactory the car may be shipped "open," in which case the buyer may unload the car immediately upon arrival, the two parties making whatever terms they see fit as to payment.

"F. o. b. sales" are usually understood to mean sales at the shipping point of the onions loaded in cars, the buyer assuming all costs and risks of transportation. "F. o. b. destination," "f. o. b. Chicago," and similar expressions require the seller to assume transportation costs and risks and place the car on track at destination. Such a sale is made on a "delivered basis." The prevailing price of the onions at shipping point plus transportation costs is considered to be "delivered cost" at the city in question.

Most sales on wire orders are "f. o. b. usual terms," or "subject to inspection," which means that if the onions on arrival are not as described by the seller, the buyer may refuse the shipment. The seller must then either lower the price sufficiently to secure the buyer's acceptance, or dispose of the shipment through other channels. This privilege is sometimes abused, particularly on a declining market. In such cases, since the shipper is not present and can not easily dispose of his onions through other channels, he is more or less at the mercy of the receiver. Similar abuses may exist if the goods are sold on a commission basis. A dealer may remit to the shipper on the basis of a quality or condition much inferior to that of the stock actually received. The establishment of recognized grades, and the maintenance of Government inspectors in the principal markets have considerably improved these conditions in recent years. For a fee of

$4 these inspectors will determine the grade, quality, and condition of a carload of onions, and issue a certificate which sets forth the facts and is prima facie evidence in any United States court.

Prices "f. o. b. usual terms" are usually a few cents higher than "f. o. b. cash track," because in the latter case cash is paid immediately without possibility of rejection and because dealings are made personally between seller and buyer without expense or delay of telegraphing.

A speculator, a broker, or a cash buyer can use any of the methods of sale. In fact, all of these methods (except cash at car door) are used by both dealers and growers.

Many of the buyers at the Texas shipping points are agents for dealers with headquarters in various cities. They are often local men, who buy for outside parties on a brokerage basis of about 10 cents a crate. They in turn sometimes employ buyers to secure onions in the upper counties, paying them about 5 cents a crate for their services. The city dealers sell the onions to jobbers or retailers, depending largely upon the size of the city in question. In the larger cities the brokerage or commission houses sell in "jobbing lots" of 20 to 50 or more packages to jobbers, who in turn sell in smaller quantities to retailers.

SHIPPERS' MARGINS, TRANSPORTATION CHARGES, AND PRODUCERS' RECEIPTS COMPARED [4]

The relative advantage of the shipping point compared with the delivered sale has aroused much difference of opinion among Texas onion growers. Some growers sell through brokers or consign to commission houses in various parts of the country each year in the belief that the risks and costs are more than compensated by the higher prices secured by the delivered sale. Others prefer to sell locally for cash to speculators or to the representatives of carlot receivers. A large number use both methods, depending on conditions. The growers' cooperative association that discontinued business in 1913 made a determined effort to force selling on a delivered basis only.

The following paragraphs and accompanying charts are devoted to a description of the portion of the wholesale price retained by the producer, the margins or spreads that have been obtained by shipper or speculator, and the transportation charges daily for six years. By a study of past conditions the grower will be in a better position to determine the circumstances under which he can profitably utilize the services of the speculator or shipper, and those under which he can better assume for himself the risk of market fluctuation and the costs of shipping to one of the consuming centers.

The margins shown were computed by determining the average prices paid at each stage of the marketing process. Sufficient time was allowed between stages to permit the commodity to reach the next step. For example, the prices paid at Laredo on Monday show a certain average price paid for all No. 1 Yellow Bermudas. Onions bought on that day ordinarily arrive and are sold on the Chicago

[4] In this discussion "shippers' margin" represents the difference between the price per crate at which the shipper buys the onions and the price at which he sells them, less the transportation charges. These charges are separated, as they are the same whether paid by the local buyer or by the grower who consigns his shipments. Producers' receipts are the amounts paid to the producer for his onions per crate, less transportation charges if he consigns his own shipments.

market the following Saturday. The average price of the same quality onions in Chicago Saturday is the Chicago price used. The difference between what they cost on Monday and what they sell for on Saturday at Chicago, less transportation, is the margin received by the shipper to Chicago. In like manner, the difference between the average cost at Laredo on Monday, and the average price at New York on Tuesday of the second week is the average New York shipper's margin. Figure 7 shows the percentage of the price paid in consuming centers that is received by the purchaser, shipper and transportation agency.

The producer generally receives more per crate early in the season than later, but the proportion of the wholesale price is about the same.

Transportation costs per crate advanced in 1918, in 1919, and in 1921, and declined in 1922 to a point generally about half way between the 1919 and the 1921 rates. The percentage of the wholesale dollar used for transportation changed more because of changes in the prices received for the product, than because of changes in freight rates.

A very high percentage in 1921 resulted from a combination of low prices and high freight rates.

During the 6-year period the average margin per crate received by the shipper was 43 cents as compared with an average of $1.87 paid to the producer. But the amount received by the shipper fluctuated very widely. The 1919 season was very profitable, and he made an average of 84 cents a crate. In 1922, he lost an average of 22 cents on all rail shipments to New York, and 9 cents on shipments to Philadelphia, so that the average shipper's margin to all six cities was practically zero, and the expenses of operation were a net loss.[5]

The shipper's margin does not usually vary greatly on shipments to one city over those to another with the exception of St. Louis and New York. Shipments to St. Louis generally show a smaller margin between delivered cost and selling price than other cities, because it is a diverting point for most of the onions marketed. Whenever the St. Louis market is at all satisfactory, the onions are unloaded there instead of a longer journey being risked. New York showed a lower shipper's margin or greater actual loss for 1921 and 1922 than any of the other cities, but had the normal margin in previous years. The explanation is not entirely clear. It seems to have been partly due to heavy dumping of both Texas and California stock and to heavy importations of foreign onions at this port. Boat shipments from Texas via Galveston do not appear to have been an important factor. The part-water route to New York is cheaper than the all-rail, but the longer period en route gives the normal seasonal decline greater effect. Table 5 indicates that shipments via Galveston were not so large as in former years. Chicago also showed a somewhat moderate margin because of the keen competition there with the California product. The shipper's margin for the 6-year period averaged 53 cents for Boston and 32 cents for St. Louis as compared with 43 cents for all six cities. In the order of width of the average shipper's margin from highest to lowest over the 6-year period, these cities ranked as follows: Boston, Pittsburgh, Philadelphia, Chicago, New York, St. Louis.

[5] The shipper's margin represents the total difference between buying and selling prices less transportation expense. All of the expenses of the shipper must be paid out of the margin received by him, and this fact should be given consideration in determining his worth to the industry.

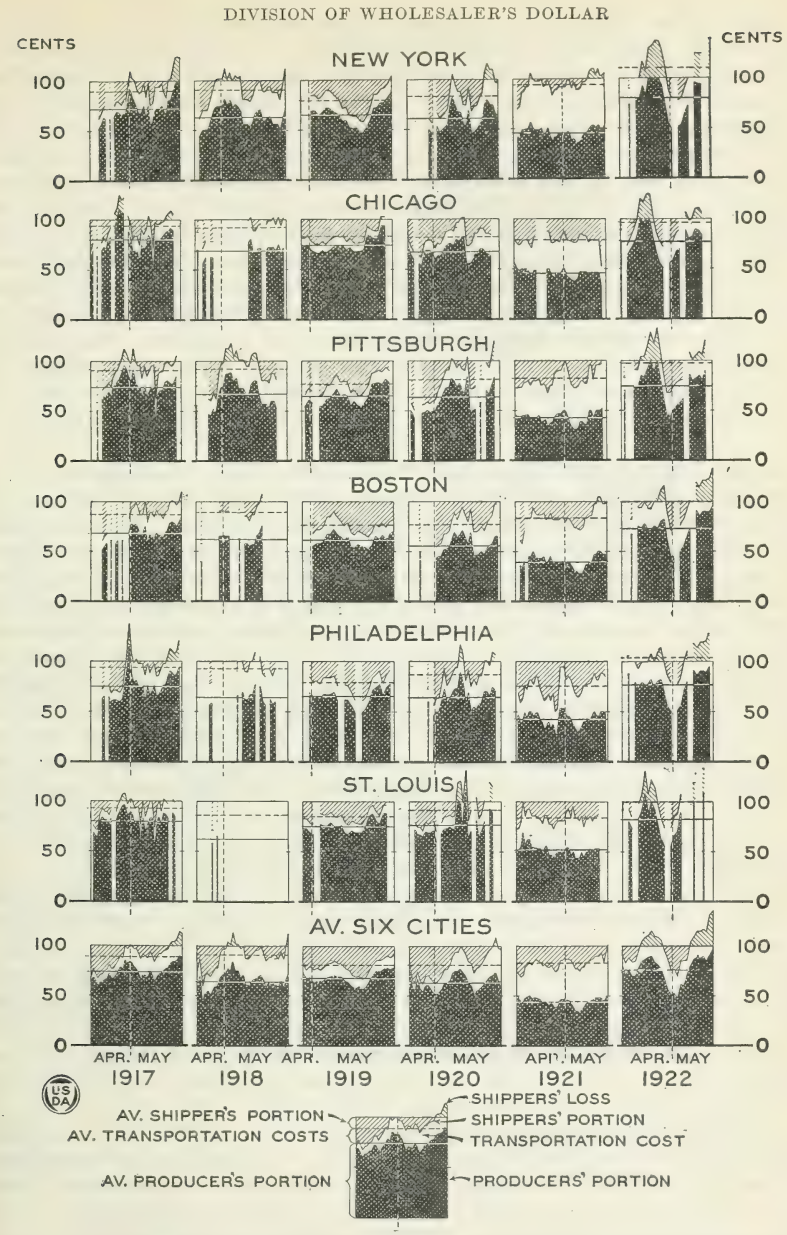

FIG. 7.—Over the 6-year period the producer received an average of 64 cents out of the dollar paid by the wholesaler, the shipper averaged 13 cents, and the cost of transportation was 23 cents. The chart calls attention to the fallacies that an observer can fall into by using such averages without reference to the data from which they are computed. For example, the average transportation cost in 1919 was 13 per cent of the wholesale selling price, but in 1921 the seasonal average was 39 per cent, or exactly three times as great on account of increased freight rates and lower prices. The producer received 44 per cent of the wholesale price on an average in 1921 and 76 per cent in 1922. Equal variation exists within each season. The average shipper made a gross profit of 30 cents a crate on May 2, 1922, and lost 36 cents a crate on May 15. Moreover, these charts refer to the average shipper for any given day. The margin received by any particular shipper will vary with his bargaining skill and a great many other circumstances that affect each given sale

It is evident that if a dealer bought at less than the prevailing price at shipping point he would make an extra profit, and if he sold for less than the prevailing price in terminal markets he would make less than the usual profit. The charts represent averages only.

A grower who consigned to a commission house on a 10 per cent basis lost money by so doing, after April 15 or 22 in 1916, 1917, and at the very end of the season in 1919. On the other hand, growers and shippers found it profitable to consign or sell f. o. b. destination through nearly all of the 1919 season and at the beginning of the two preceding seasons. In 1920, consignments or destination sales were profitable up to the last of April and f. o. b. sales the more profitable thereafter. In 1921 city prices allowed shippers a steady but moderate net margin throughout most of the season. For a short while at the opening, the shippers' margin per crate was practically as large as the original price to the grower. In 1922 the shipper made money the first and third quarters of the season but lost it the second and fourth.

At the beginning of the season it appears to have been more profitable generally for a grower to ship to consuming centers and sell at city prices than to sell locally at shipping-point prices. In the middle and latter part of the season the reverse has usually been true, particularly if there were heavy commissions or other selling expenses to be met. Future seasons, however, will not necessarily follow the same course because a general realization of such a situation tends to stimulate competitive bids to the point where the usual early margin becomes narrower. Two circumstances are probably responsible for the extra margin of the shipper at the beginning of the season. (1) At that time many markets have not been sounded out by the arrival and sale of a car, and the prices that will be paid on all markets are therefore more or less problematical. (2) The usual rapid decline at the beginning of the season places the purchaser of high-priced onions in a precarious position. The buyer or speculator must take these facts into consideration in making his bid.

The ratio of the shipper's margin to the producer's receipts varies widely in different years. In 1917, the producer received good prices generally, but the shipper made comparatively little. In 1919 the rise in prices aided the shipper, and the producer's receipts were satisfactory. In 1921, the shipper made small but steady margins while the producer generally sold his crop for less than cost of production. In 1922 the producer received fairly good prices, but the shipper lost as much as he made, and shippers to New York and Philadelphia lost considerably more than they made.

In 1922 the average producer's receipts for shipments to the six cities ranged from 73 to 82 per cent of the wholesale price in consuming centers, and the transportation charges from 18 per cent at St. Louis to 30 per cent in New York. The average percentage of the wholesale price taken by each factor for the six years follows:

Average percentage of the wholesale price in consuming centers

Received by—	1917	1918	1919	1920	1921	1922	Average
Producer	74	64	67	63	44	76	64
Transportation agency	15	27	13	18	39	24	23
Shipper	11	9	20	19	17	0	13

The cash buyer or speculator who buys onions f. o. b. shipping point and then sells to connections in consuming centers, performs a definite service for the grower. He pays the grower immediate cash and finds the market. He assumes the speculative risk of market fluctuations and losses of any kind after the onions leave the sellers' switch. He pays the transportation costs out of the difference between the price at shipping point and at destination, and out of the balance he pays all selling costs, telegraphic tolls, salaries of office force, and maintenance of his office. In some cases he performs all of these services and receives no remuneration, as, for example, in 1920. But, obviously, on the whole, he must receive enough to pay all costs of performing these services and some profit or he could not remain in business. For this 6-year period the shipper received an average of 43 cents a crate, out of which he paid all marketing expenses from shipping point to wholesale dealer (except transportation) and assumed the risks of market fluctuation, spoilage or loss en route, and failure of wholesale dealer to keep his contract.

A disadvantage of the cash-buyer system is that the buyer is willing to pay cash only when conditions are favorable and when the grower can readily find another outlet for his onions. When conditions are unfavorable, as in 1921, or in the latter half of 1918, the cash buyer is likely to stop buying and to receive onions only on consignment or not at all. Individual dealers can not be blamed for refusing to buy produce when they are likely to lose thereby, because they are in the business to make a profit. But from the grower's standpoint a system is hardly satisfactory that gives him a ready market only when conditions are bright and he has alternative methods of sale. When marketing conditions are bad, the grower is most in need of help, and a method of selling which fails at that time accentuates the evil. What is needed is some agency that will make an unusual effort to stimulate consumption at such times.

The individual grower will find it profitable to sell to the local buyer sometimes and at other times to sell in one of the ways that permit him to secure the benefit of the delivered price. In 1922, and late in the season in several other years, the grower who sold to the local buyer had the best of it. But in the long run the buyer who specializes in the marketing of a crop is likely to be a much better bargainer than the grower who specializes in its production. From the growers' standpoint, as a group, the relative advantage of the shipping-point sale, as compared with any method whereby the delivered price is secured will depend (1) upon whether the marketing work will be done as well as the buyer does it or as cheaply as the average margin of the buyer amounts to, and (2) whether the alternative agency will take care of the crop more dependably than the buyer has done in the seasons when unfavorable market conditions prevail.

BERMUDA ONION PRICES FROM 1916 TO 1923

Wide fluctuation is the outstanding characteristic of domestic Bermuda onion prices. Jobbing prices at six large markets fell from nearly $6 a crate to slightly over $1 in eight weeks in 1920 with similar declines in 1917 and 1922. The difference between average prices in different seasons is almost as striking as the fluctuations within each season (fig. 8). Average jobbing prices in 1919 were almost

BERMUDA ONION PRICES, DAILY, 1916 TO 1922

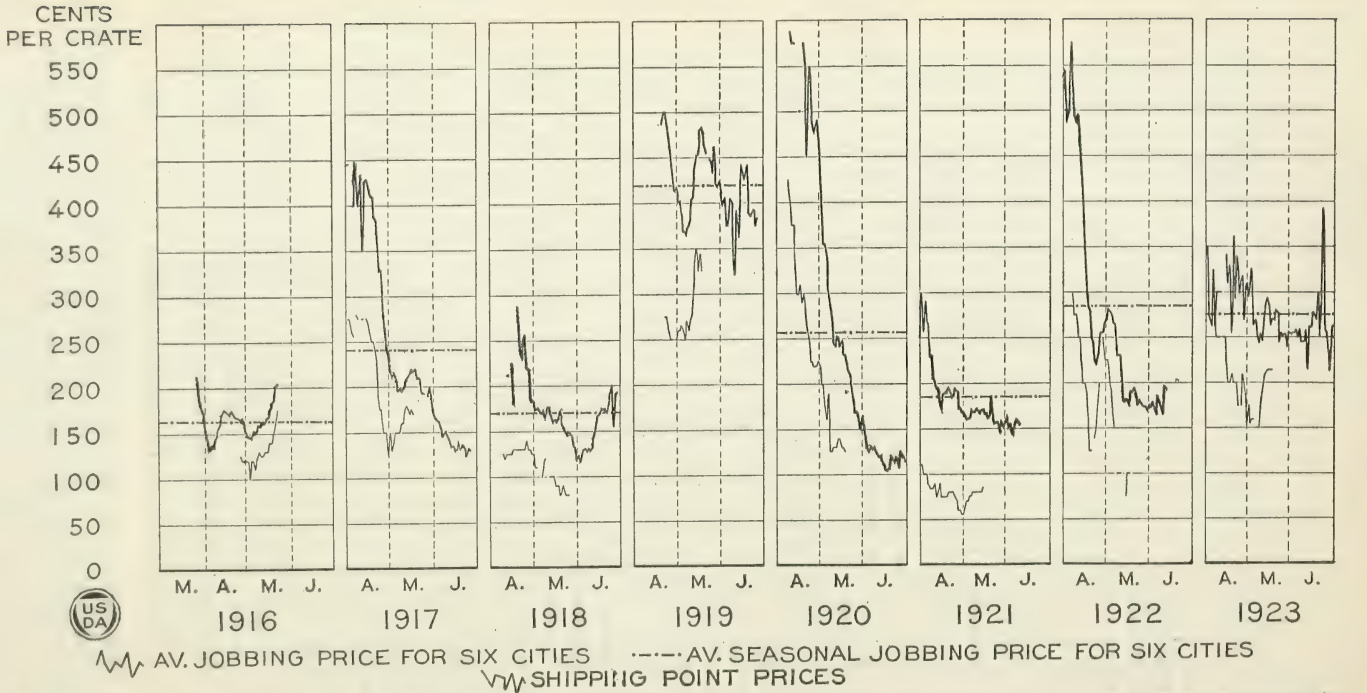

FIG. 8.—Bermuda onion prices are characterized by extreme fluctuations which render the growing of this crop more hazardous than that of most agricultural commodities. Prices are usually much higher in the early part of the season than later, but the decline is not of equal rapidity in different years

three times as great as in the previous year. Prices at shipping points were equally variable.

The extreme variation in market prices renders the growing of Bermuda onions unusually speculative. Costs per acre are very heavy because of irrigation and hand labor required.[6]

These heavy costs may be provided for throughout the year on the chance that receipts will be sufficient in the spring to reimburse the unusually high expense. In years like 1918 and 1921, all but a few growers suffered heavy losses. In seasons like those of 1917, 1919, and 1922, as the expenses are very little more, a large share of the gross receipts for onions represents net profit.

Prices are usually much higher in the early part of the season than later. There is no typical seasonal variation. The rate of decline is variable, and in two of the years under discussion growers received more for shipments made in the latter part of May than for those made earlier in the season.

PRICES IN 1916

Prices in 1916 were comparatively stable. Heavy shipments the latter part of March, warm weather, and a heavy volume of unabsorbed old stock started a decline which threatened to carry the price down to unusually low levels. A meeting of all growers and shippers was called at Laredo on April 6 for the purpose of limiting shipments to such quantities as could be absorbed in the consuming centers and of storing what was necessary near shipping points. A trade paper [7] reported that the agreement to curtail shipments had resulted in an increase of prices at shipping point from $1 to $1.15 on Yellow Bermudas and from $1 to $1.25 on Crystal Wax. A part of this increase was due to rains which shut off digging and caused a division of the main movement into three successive peaks.

The effect of these various factors was to stabilize prices between about $1.50 and $1.75 in the cities and approximately $1.25 at the shipping point, at which prices most of the crop moved into consumption.

Most of the crop was bought on contract by dealers some time before harvesting began. A large part of the crop was sold f. o. b. shipping point by both dealers and growers.

PRICES IN 1917

The 1917 season presents the anomaly of the largest crop of Bermuda onions of the past eight years,[8] marketed at prices next to the highest of the period. (See fig. 9.) This apparent reversal of the usual situation illustrates the complex forces determining price. The principal optimistic factor seems to have been the small carry over of old onions, resulting from the previous year's short northern crop. The Texas crop started to move unusually early and found the market nearly bare of old stock, and there was little competition from other new stock until much of the Texas crop had been sold.

The general impression early in the season that cold weather would reduce the yield materially was another factor favorable to higher prices. The unusually heavy and long-continued movement from

[6] Cost of production is estimated at $125 to $139 per acre in 1915 in Bulletin No. 46 of the Texas Department of Agriculture.

[7] New York Packer, Apr. 22, 1916, p. 11.

[8] Texas 5,892 cars, California 494 cars, total 6,386 cars.

Texas, the increasing receipts from other areas as the season advanced, and the declining quality of the Texas product toward the end of the season caused a precipitate decline from $4.50 to $1.35 per crate in consuming centers with a similar fall in prices through shipping areas. Many of the growers and shippers foresaw the decline and made all possible efforts to get out their onions while prices held. Many onions were shipped before reaching maturity.

If an average were taken of prices with such wide fluctuations, it would show about $2.40 per crate for the terminal markets, and approximately $1.75 in shipping sections.

Both dealers and growers generally sold on wire orders, f. o. b. shipping point for cash or bank guarantee. However, for a month after shipping began, shipping on consignment proved to be more profitable than selling locally.

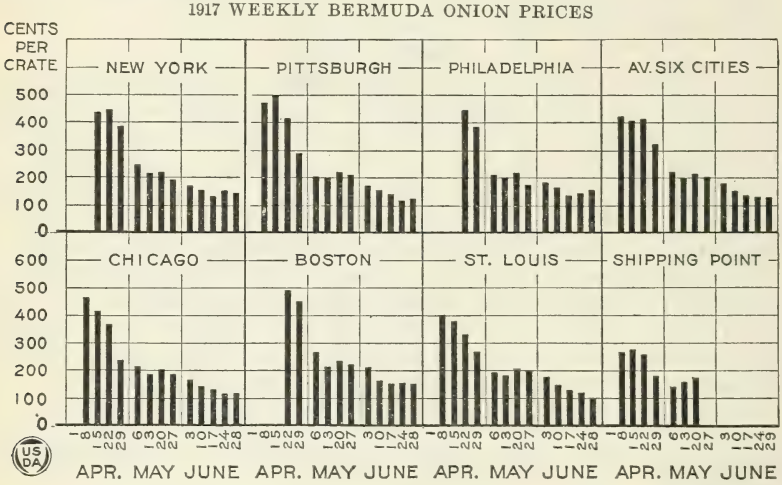

FIG. 9.—The heaviest Bermuda crop of the 8-year period was shipped at better than average prices, due principally to the scarcity of old stock and general bullish sentiment. The severe decline was due to a better realization of true conditions, the continued heavy shipments of new stock, and deterioration in quality

PRICES IN 1918

At the opening of the 1918 season, nearly 500 cars of old stock still remained to be marketed. This was approximately equal to the 8-year average. But this situation, following a year when less than 100 cars of old stock were carried over, exerted a depressing influence upon growers and dealers out of proportion to the quantity involved. A general overestimate of the new crop [9] and the difficulty in obtaining sufficient cars [10] aggravated this influence, so that prices at Laredo were depressed about $1 a crate the first half of the season under the 1917 level. In the end 1,500 cars less of new stock were shipped than in 1917 or 1,000 cars less if both old and new stock, during the Bermuda season be included.

Prices around $2 per crate in consuming markets, and $1.35 in Laredo were paid until the latter part of April. Early in May,

[9] The trade estimated acreage at 18,000 acres as compared with 1917 estimates of 12,000 acres. New York Packer, Mar. 23, 1918, p. 23.

[10] Shippers were so worried by transportation conditions that a special committee was sent to Washington to consult with the Railway Administration.

heavy rains occurred which caused the shipment of inferior stock and accentuated the usual seasonal decline.

Many different methods of sale were used during the season. Some onions were contracted for before harvesting, some were consigned by growers, and some were sold f. o. b. shipping point for cash. After the rains in early May there was a general disinclination on the part of the dealers to pay cash for the onions. Several growers consigned cars to reliable dealers in large markets, but the majority turned over their stock to local dealers to handle for them on a commission basis.

PRICES IN 1919

The low prices received by growers in 1918 resulted in a marked decrease in plantings the following year. Texas acreage was less than 7,000 acres as compared with 18,000 acres the previous year. California plantings were reduced from 3,000 acres to less than 2,000. Since only the usual quantity of old onions remained unconsumed on April 1, the delay in the opening of the 1919 season allowed more than the usual amount of these onions to be consumed before the Texas crop came on the market.

These conditions caused high opening prices, but as heavy shipments began to arrive in the markets, the usual seasonal decline began to take place. This decline would undoubtedly have attained considerably more momentum had it not been for the heavy rains that occurred early in May. These rains shut off the supply temporarily and sent prices sharply up again in consuming centers.

Irregular declines took place after that time, caused principally by the receipt in various cities of stock damaged by the rains, but the market held up thereafter better than usual in that part of the season. At Laredo prices moved steadily upward. Because the rains in 1919 were more evenly spaced through the season than in 1918, were not so severe at any one time, and caught the onions at a less mature stage generally, their effect was to raise prices instead of lowering them as was the case in 1918.

Total Bermuda shipments in 1919 were the smallest of the eight years and prices in general the highest.

The expectation of very high prices in 1919 caused dealers to contract a large percentage of the crop a long time before the opening of the season. The contract prices in most cases ranged between $1.50 and $2.25 per crate. Many of these dealers then resold the onions on wire orders f. o. b. shipping point. A few of the larger growers, who had thorough organization for selling, consigned to their agents in the consuming markets, and generally reaped a handsome profit.

PRICES IN 1920

Texas Bermudas reached the highest values of the five years at the beginning of the 1920 season, several important markets paying $6 to $7 a crate for No. 1 Yellow Bermudas. (See fig. 10.) Even at Texas shipping points, over $4 was paid up to April 12, and in spite of a switchmen's strike and a labor shortage these exceptional prices soon stimulated a very heavy movement and caused the most rapid price decline of the eight years. California shipments and imports from Egypt and the Bermuda Islands were much heavier than in previous years and helped to depress prices. The bulk of the crop

probably did not bring over $1 to $2 on a shipping-point basis. By the middle of June, prices had so far declined that consuming markets paid only 75 cents to $1.50 per crate.

The extremely high opening prices seem to have been caused by the high expectation of the growers and of the trade based on the high prices of 1919. There were fewer old onions than usual and they were selling at a little more than usual prices. But an analysis of factors that usually influence opening prices fails to indicate that such extremely high prices were warranted. The unusually drastic decline with the advent of heavy shipments supports this view.

The 1920 season differed from the previous years in that no heavy rains occurred during the harvesting season. This resulted in a more concentrated movement and a better condition of stock throughout the season than is usually the case. Not only was the crop of excellent quality, but the yield was generally heavy, many growers harvesting 700 to 900 crates per acre.

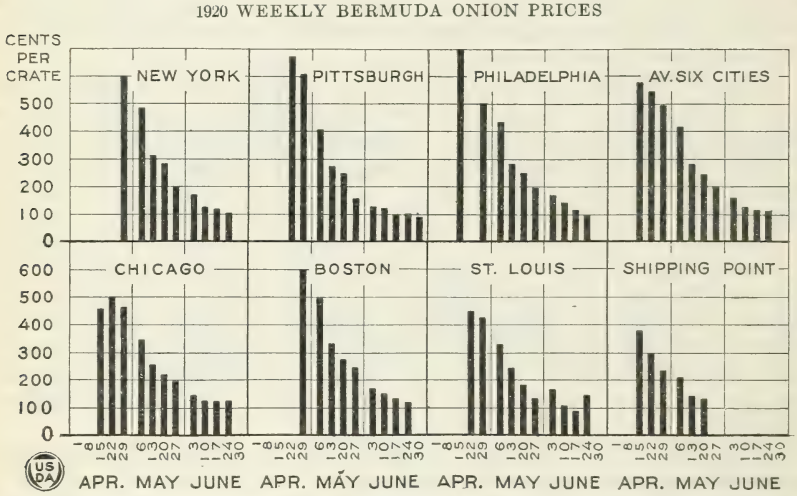

FIG. 10.—This was a year of extreme prices. The highest opening prices of the period were followed by the most rapid and sustained decline. The rapidity of the decline seems to have been the result of an unwarrantedly high price in the beginning and the dry weather, which permitted an unusually well-sustained movement

Owing to the heavy movement of cabbage from southeastern Texas and the general shortage of ventilator and refrigerator cars, converted box cars were used for the transportation of most of the onions. Holes were cut in the ends of the cars and the doors were slatted. Bushel baskets and sacks were used for a part of the crop on account of an insufficient supply of crates. These containers were cheaper than crates, but did not give entire satisfaction, for their use was greatly curtailed in 1921. This equipment under the unusual continuance of dry weather throughout harvest, carried the season's crop fairly satisfactorily.

It was very difficult to market profitably in the 1920 season. Early in March the sentiment was rather pessimistic. A trade paper reports that only 5 per cent of the Laredo area was contracted as compared with a much higher normal percentage, because dealers were afraid of a very large Texas and California crop and heavy

Egyptian importations.[11] By the time the season opened a month later public sentiment was reversed only to become suddenly pessimistic again with increased shipments.

A large part of the 1920 crop was shipped on consignment, the shipments made by this method before May 1 generally yielding an extra profit of $1 a crate over f. o. b. track sales. By that date prices in terminal markets had declined so abruptly that consignment sales were less profitable.

PRICES IN 1921

Bermudas were ready for the harvest earlier in 1921 than at any time since 1916. This was unfortunate for the growers this year, because northern markets were choked with old onions. The largest carry over of northern onions for the 8-year period was being sold for as low as 50 cents per 100-pound bag. Under these conditions it was impossible for Bermuda onions to sell at very high prices. Some of the northern markets paid up to $3 a crate for the very earliest Bermudas, but the shipping-point price did not exceed $1.25 at any time and most of the crop was sold by the growers at between 70 and 85 cents. Crystal Wax sold about 25 cents higher.

Freight rates were an unusually important factor. The trade papers of the time are filled with references to the hardships imposed by excessive transportation cost. Transportation cost per crate was only 20 to 40 cents higher than in 1916, but the peak of high freight rates coming in this year of lowest prices was very noticeable. At one time in the season the average freight bill was actually more than the price paid at Laredo for the onions.

The price became so low at shipping points that it was hardly profitable to harvest and market the onions. In late April and early May, commercial-pack Yellow Bermudas brought only 60 cents per crate loaded in cars at the shipping point, only 30 cents above the cost of the empty shipping crate.

Conditions finally became so intolerable that a growers' and shippers' committee was formed, as in 1916, to limit shipments to the amount that could be absorbed and to distribute the shipments of all factors in such a way that all markets would receive their due proportion. The committee further recommended that cars be loaded to minimum capacity only, and that only grades No. 1 and No. 2 be shipped. Curtailing of shipments seems to have improved the situation to some extent, for prices held fairly well at terminal markets during the last month and improved slightly at Laredo.

In this season only about 1,000 acres were financed because, although farmers were generally willing to sell or contract, dealers were unwilling to take the risk. A few crops were contracted but brought only about 90 cents to $1 a crate. Dealers were generally unwilling to buy, and about a third of the movement was necessarily on a consignment basis.

PRICES IN 1922

Profiting by the experience of 1919, the 1922 growers did not reduce acreage materially after the disastrous season of 1921. More cars were marketed than in 1921, and yet the 1922 prices received were exceeded only by those of 1919. Initial prices were based on the extremely high prices paid for the few remaining old onions on the

[11] New York Packer, Mar. 13, 1920, p. 22A.

terminal markets. Growers and shippers realized that the high prices could not last, and used every expedient to put their onions on the market, grading no more than absolutely necessary and shipping more than 60 cars by express. The heavy movement that resulted combined with the poor quality of the stock already on the markets caused an unbroken decline of $3.50 a crate within a few days. Heavy rains occurring at this time held up shipments temporarily. Speculators, anticipating another season like 1919, began buying and caused a rally of about 75 cents per crate. The higher prices were only temporary, however; Bermudas soon sold lower than before.

Because of the opening high prices growers preferred to ship on consignment rather than sell to dealers in the early part of the season, though a few cars were sold for cash. Probably 75 per cent of the onions grown in the upper counties section was under contract to dealers who financed the growers. Track sales were frequent in this section, because of good demand.

PRICES IN 1923

In 1922 the grower who was able to sell on the earliest market secured $3 per crate, as compared with $1.25 for the grower whose onions were harvested two or three weeks later. With this object

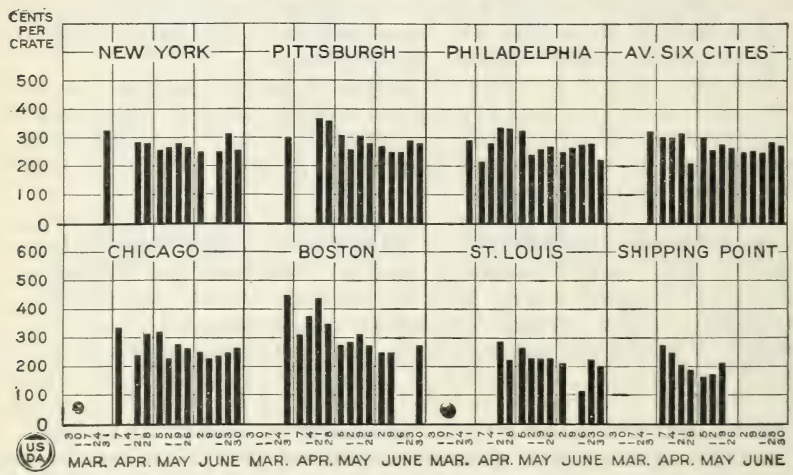

FIG. 11.—Opening prices were moderate but continued with relatively narrow fluctuation through the season. The Bermuda crop was very short, and had it not been for the exceptionally poor quality of the Texas stock prices might have shown a tendency to advance. Market prices on the different markets fluctuated in an irregular way on account of the varying quality of receipts. The recovery at shipping points in May resulted principally from improved grading. The season was very unsatisfactory for the Texas grower, for, though average prices were received per crate, the yield per acre was so low as to lower his total income to a very unsatisfactory amount

lesson in mind, Texas growers made an unusual effort to put their crop in condition for the earliest 1923 market. Plantings were made from two weeks to a month earlier than usual and transplanting to the fields was nearly completed early in December instead of at Christmas, the usual date. Favorable growing weather during December and January indicated that maturity would be proportionately early, but cold weather in February and freezing temperatures in March delayed maturity.

As a result, the season opened about the usual time. The freezing temperatures of March followed by extremely hot weather in April injured the quality materially, especially because of the unusually advanced growing stage of the plants at that time. There were more doubles, seed stems, splits, "bottlenecks," and other indications of poor quality than ever before. This was the most important factor affecting the grower's receipts during the 1923 season. Slightly more acreage than usual was planted, but shipments were smaller than in any year except 1919, because of the exceptionally large proportion of culls.

Prices were about an average between the high and low years, but did not fluctuate so widely as usual. (See fig. 11.) Opening prices were only moderate, and as it became apparent that the new crop would be short, the effect was to maintain prices on about the same level. Had the onions been of good quality and properly graded, probably an advance would have taken place similar to that of 1919. As it was, prices at shipping points sagged gradually until a point was reached where poorly graded onions no longer paid expenses. Onions were then more carefully graded and the market strengthened.

Though prices in 1923 were not lower than average, few growers made much money because of the very low yield per acre.

The growers' cooperative association, in operation in the upper counties, handled a majority of the crop of the section, the graded product securing higher prices than most other agents secured. Selling methods in the other sections were little different from those in general use.

FACTORS INFLUENCING WHOLESALE PRICES OF BERMUDA ONIONS

Differences in the prices paid for Bermuda onions, as already shown, are the result partly of physical factors inherent in the lot of goods, such as variety, container, quality, and condition, and partly the result of economic factors such as volume of shipments, carry over of old onions, and prices of other commodities.

PHYSICAL FACTORS

VARIETY

In the early part of the shipping season Crystal Wax Bermudas sell between 25 cents and $1.25 per crate higher than Yellow Bermudas, usually 50 to 75 cents higher, both at California and Texas shipping points and in the principal consuming centers. In the middle of the season, the two varieties sell at about equal prices, and the last of the Crystal Wax usually sell for less than the Yellow. The change is due principally to the deteriorating quality of the Crystal Wax as the season progresses. Crystal Wax Bermudas are more delicate than the Yellow and more easily injured by sun, rain, or handling, and therefore do not stand shipment in hot or rainy weather so well as the Yellow. The prices paid for Crystal Wax are governed largely by the prices being paid for Yellow Bermudas, because the latter make up about 90 per cent of the crop.

CONTAINERS

Practically all of the Bermuda-onion crop of Texas and California is marketed in folding slatted bushel crates holding approximately 50 pounds. Before 1920, experience with containers other than

crates was generally unsatisfactory. The trade did not take readily to new packages and discriminated against onions so shipped, partly because of the difficulty in familiarizing retailers with the new container.

In 1920, the shortage of crates made it necessary to use sacks and bushel baskets, which were cheaper for the shipper, but the onions did not seem to arrive in such good condition in these containers, particularly in hot weather or when the stock was not absolutely dry. It is claimed that they are particularly undesirable for loading in steamers, because the onions are likely to heat if placed near the center of the ship or near the boilers. In 1921, only the left-over baskets were used, and not over 10 per cent of the movement was in bags.

To comply with the requirements of the food and drugs act, either the net weight or dry measure is marked on all onion containers.

QUALITY AND CONDITION OF RECEIPTS [12]

The quality and the condition of the onions on arrival in consuming markets has an important effect on the price offered. These factors can be controlled largely by united efforts of growers and shippers. If heavy rains injure the carrying quality of the onions, it is no fault of the growers, but if poor prices are received because the onions were poorly graded, poorly packed, or badly loaded in the car, a repetition can be avoided. In a year of exceptional scarcity and high prices, like 1919, ungraded or partly graded onions may sell at good figures, but in most seasons failure to sort out No. 1 onions and sell them separately generally results in the whole lot selling at about the price of graded No. 2 onions.[13] For the past six years, No. 1 onions have usually brought between 25 and 50 cents more per crate than second grade or partly graded stock. In a year of low prices, it is easily possible that this difference on the No. 1 onions would make the difference between profit and loss on the year's operations.

Shipment of ungraded, or partly graded, onions is as injurious to the producing community as to the individual grower, for the arrival of a great deal of inferior stock on any market tends to depress prices for all qualities of onions. The ungraded stock tends to remain on the market and to clog the channels of trade.

During the 1916 and 1917 seasons, California stock sold either on a parity or at a 10-cent premium per crate over the Texas product, largely because of better grading. In the 1919 season grading had been so relaxed in Texas, or there was such a difference in quality, that Californias brought 25 to 50 cents more per crate in the leading markets. In 1920 Californias brought equal prices or a premium of only 10 to 25 cents over Texas Bermudas. Partly because of better grading, about the same prices were paid at California shipping points per crate as were paid at Texas shipping points during 1920, in spite of the greater distance from the large markets, California growers having slightly the best of it late in the season.

In 1921 and in 1923 California shipments generally brought a premium, except in the case of the Texas onions shipped cooperatively under strict grading in 1923.

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[12] "Quality" in this discussion refers to such characteristics as uniformity and desirability of size, shape, variety, and the other natural qualities of the onions as distinguished from "condition"—the state of preservation or deterioration.

[13] United States grades for Bermuda onions are described in detail at the end of this bulletin.

ECONOMIC FACTORS

The wholesale price of a crate of Bermuda onions of a given variety, grade, and condition, at a given time and place, is dependent upon a number of factors which may be conveniently classified into three groups: (1) Those that affect primarily the opening price and the general price level of the season; (2) those that influence principally the price fluctuations within the season; and (3) those that are more or less local in character and principally affect prices at a given point.

The average opening price at consuming centers paid for Texas Bermuda onions has varied from approximately $2 to $6 per crate during the 8-year period. The seasonal average price has varied in almost the same ratio. This variation, one season with another, may be traced to the following factors, of which the first two are of greatest importance: (1) Quantity of old onions in storage at opening of the Bermuda season. (2) Prices at which these onions are being sold. (3) Estimated size of crop of Bermudas. (4) Imports of onions during the Bermuda season. (5) Accuracy and completeness of market information and mental reactions of growers and dealers. (6) General price level.

QUANTITY OF OLD ONIONS IN STORAGE

The quantity of the previous year's crop of northern onions still unconsumed at the beginning of the Bermuda season exerts an

RELATION OF BERMUDA OPENING PRICES TO OLD STORAGE HOLDINGS

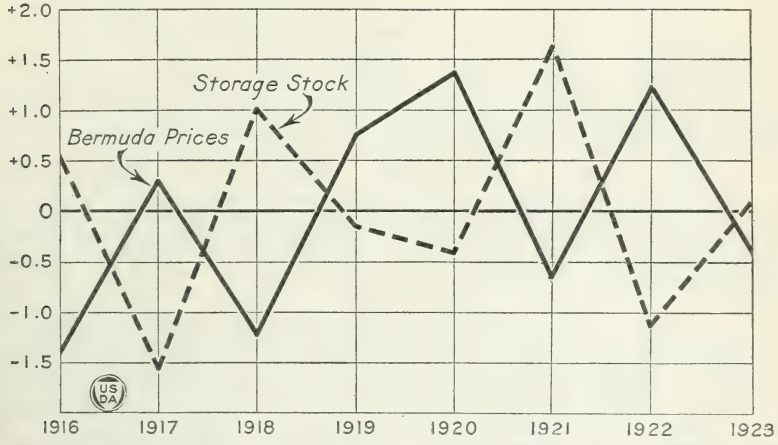

FIG. 12.—A close inverse correlation exists between the amount of old stock in storage on February 1 (the last date upon which a complete report is made up) and the prices paid for Bermudas at the opening of the season 7 to 10 weeks later. The solid line represents the average of the first week's price for the principal consuming cities, the dotted line actual carloads in storage February 1, each expressed in terms of comparable units

influence on the prices paid for Bermuda onions, particularly the opening price, out of all proportion to the relative size of the two. It is surprising that less than 500 cars of old stock (except in 1921—952 cars) can indicate so closely the general price level of the early sales for a seasonal output of 3,000 to 6,000 cars. Figure 12 shows graphically the close inverse correlation which exists between the amount of storage stock and opening prices of Bermudas.

So close an inverse correlation has existed in past years that one knowing the amount of storage holdings on February 1 could predict approximately the average opening price that would be paid for Bermudas two months later. Figure 13 shows the price so predicted compared with the actual opening price. The predicted price changes its direction in every case in like manner with actual price, never misses the actual figure by more than 20 per cent, and practically coincides with the actual price in two years out of the eight. The differences are the result of other factors acting on the price level for Bermudas.

The actual amount of old stock on hand at the opening of the Bermuda season, as indicated by total shipments of old stock after the respective opening dates, shows a similar inverse correlation

OPENING PRICES OF BERMUDA ONIONS COMPARED WITH PRICE PREDICTED FEBRUARY 1 FROM STORAGE HOLDINGS

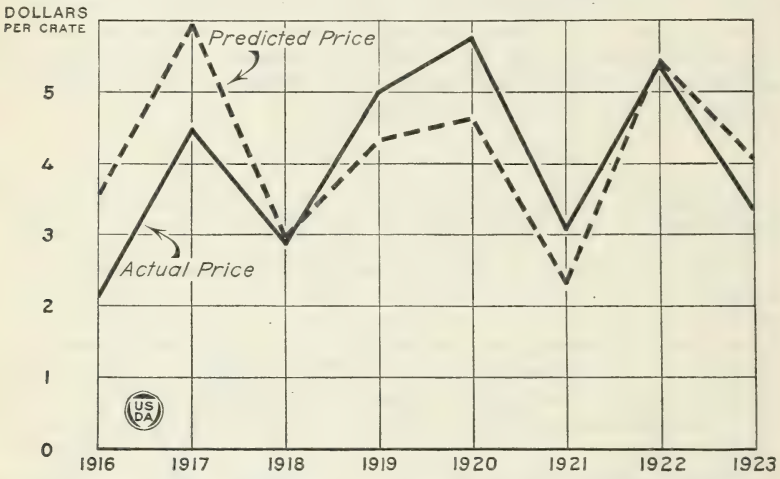

FIG. 13.—So close an inverse correlation exists between the amount of storage holdings on February 1 and the opening prices that will be paid for Bermudas two months later, that one can predict approximately the price that will be paid from this one factor alone. The predicted price above is based on the assumption that each change of 100 cars in storage holdings changes the price inversely 72.2 cents. The actual price is the average of the first day of the season for which prices are quoted from at least three large consuming markets

between amount of storage stock and Bermuda opening prices; but the degree of correlation is not so noticeable because the February 1 report is the last complete report of storage holdings available to the trade. Upon this report, contracts are based for purchase of crops which more or less fix the value of the first shipments. The actual number of cars that will move is not known until later. Estimates are all that are available. For this reason, the February 1 estimate of storage holdings has proved in the past to be a better index of Bermuda opening prices than actual quantities remaining after the opening of the Bermuda season.

PRICES OF OLD ONIONS BEFORE OPENING OF BERMUDA SEASON

In a general way, prices of old stock immediately preceding the opening of the Bermuda season vary inversely as the supply of old stock. But the quality and condition of the old stock and a number

of other factors beyond the scope of this bulletin influence the price of old onions to such an extent that the correlation is not by any means perfect. (See Table 6.) In the spring new onions are preferred to old unless the price of the new is greatly out of line. For this reason, the price of new onions will follow fairly closely the price old onions brought the week before the opening of the Bermuda season, and this correlation gives an additional means of forecasting the opening prices for Bermudas. The price for the past eight years, predicted in this way, is shown in Figure 14.

OPENING PRICES OF BERMUDA ONIONS AT SHIPPING POINT COMPARED WITH PRICE PREDICTED FROM PREVIOUS WEEK'S PRICE OF OLD STOCK IN CONSUMING CENTERS

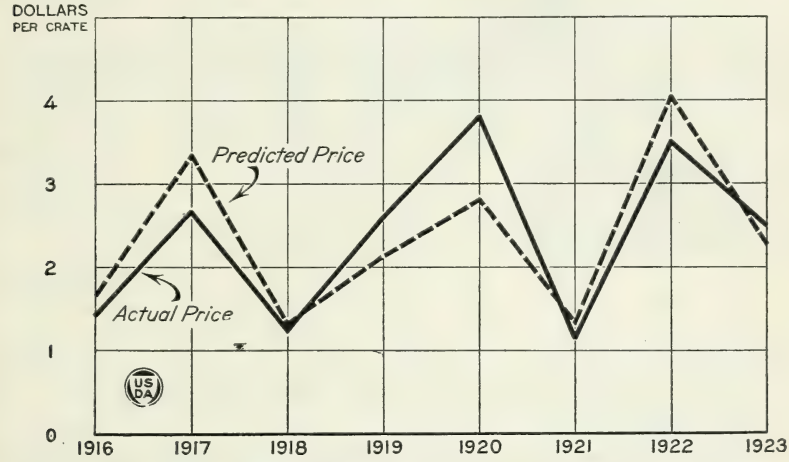

FIG. 14.—A fair indication of the probable opening price that will be paid for Bermudas at shipping point can be obtained from the price at which old onions are being sold in the terminal markets the week preceding the opening of the Bermuda season. The predicted price shown is based on the assumption that each change of $1 in the price paid per 100-pound sack for old stock is correlated with a like change of 27 cents in the opening price of new stock

ESTIMATED SIZE OF NEW CROP OF BERMUDAS

The size of the new crop is dependent upon the acreage planted and yield per acre. These two factors and the causes behind changes in them have been analyzed in a preceding section.

The size of the new crop does not seem to have affected opening prices to so large an extent as generally supposed. In fact, the influence of the estimated new crop is comparatively small and is outweighed by other factors. In 1917, though prices were high because of the small carry over of old onions, the unusually large quantity of new onions may have prevented the prices from rising still higher. But as a general rule, large or small quantities of new onions affect prices in a somewhat different fashion. The total available supply of old onions seems to operate to raise or lower the early prices of Bermudas, but with the new onions, only the visible supply, that is, the quantity already shipped, seems to affect prices much during the first part of the season. Once the season is under way, however, the effect of shipments of new stock is a very important factor.

TABLE 6.—*Statistics of factors related to the opening and interseasonal average price of Bermuda onions, 1916–1923*

[Absolute figures]

QUANTITIES	1916	1917	1918	1919	1920	1921	1922	1923	1917–1922 average
Estimated acreage, Texas Bermudas ---acres	10,057	12,050	18,070	6,590	12,446	10,503	11,900	12,590	11,926
Estimated acreage, total early (Texas, California, and Louisiana)---acres	13,957	16,350	21,047	8,427	16,826	13,513	15,950	15,030	15,352
Estimated yield per acre, all early ---bushels	219	258	173	259	258	213	223	180	231
Estimated production in cars 500 bushels, Texas---cars	4,500	6,000	5,746	3,519	6,372	4,348	4,665	4,149	5,108
Estimated production in cars 500 bushels, total early---cars	6,091	8,346	7,281	4,370	8,680	5,744	6,619	5,416	6,840
Bermudas shipped, Texas---do	4,522	5,892	3,563	2,835	5,038	4,011	4,439	2,809	4,296
Bermudas shipped, California---do	251	494	371	336	1,177	899	1,251	706	755
Bermudas shipped, total---do	4,773	6,386	3,934	3,171	6,215	4,910	5,690	3,515	5,051
Old onions on hand in storage, February 1---cars	4,302	995	5,114	3,212	2,798	5,996	1,683	3,571	3,300
Old onions shipped after April 1---do	-------	82	485	360	276	709	80	598	332
Old onions shipped after opening Bermuda season [1]---cars	-------	47	470	215	276	952	160	394	353
Imports by years in equivalents of cars of 500 bushels---cars	2,516	3,870	522	1,481	3,638	3,952	2,901	-------	2,727
Imports by years in equivalents of cars of 500 bushels, April, May, June only---cars	331	573	203	210	674	59	852	-------	428
PRICES									
Opening Bermuda prices per crate at Texas shipping points	$1.22	$2.66	$1.24	$2.60	$3.80	$1.15	$3.50	$2.75	$2.49
Opening Bermuda prices terminal markets [2] First day, 3 markets	2.12	4.47	2.87	5.00	5.75	3.08	5.37	3.33	4.42
Opening Bermuda prices terminal markets [2] First week	1.87	4.24	2.12	4.91	5.79	2.81	5.62	3.22	4.25
Modal prices per sack of Northern and Middle-western Yellows, week preceding opening of Bermuda season	2.25	8.50	1.00	4.00	6.50	1.00	11.00	4.50	5.33
Bermuda seasonal average prices at Texas shipping point	-------	2.01	1.11	2.86	2.28	.82	1.86	2.03	1.82
Bermuda seasonal average prices composite of six markets (principal 12-week period)	1.67	2.51	1.75	4.14	2.83	1.88	2.94	2.84	2.68
Bermuda seasonal composite terminal average prices (all weeks reported)	1.95	2.37	1.70	4.19	2.58	1.87	2.75	2.81	2.58

[1] Season considered opened when 10 cars or more have been shipped in one week, except in 1923, when 19 cars moved in two weeks, but real movement began the fourth week.

[2] Opening price first day at terminal markets is assumed to be the average of the day when quotations are received from at least three markets. The price used is the one that seems most representative of all markets reporting at that time for ordinary first quality commercial pack yellow Bermudas.

The relative concentration of shipments of new stock in different parts of the season, and in relation to other factors influences the average price received by growers as much perhaps as the size of the crop. The effect of the volume of shipments of new stock on the price fluctuations within the season will be described later.

IMPORTS OF ONIONS DURING THE BERMUDA SEASON

Imports of onions during the Bermuda season amounted to the equivalent of over 1,000 cars in 1917, 1920, and 1922, reaching the highest point in 1920. In most other years they amounted usually to around 200 cars and were a negligible factor. In 1920, there was considerable fear of Egyptian importations early in the season, but this did not prevent the highest opening prices of the season. Later, the imports may have had part in the unusually rapid decline. As a general rule, however, imports are a very minor factor in Bermuda prices. Imports do not show any definite trend in either direction,

but increase and decrease in accordance with a variety of conditions, of which the price of onions in this country is only one factor. Other factors affecting importation are exchange rates, oceanic shipping conditions and rates, and market conditions in Europe. Table 7 gives the imports of onions into the United States by months from 1914 to 1922. Figures for 1923 were not available at the time this table was prepared.

TABLE 7.—*Imports of onions into the United States, by months, 1914–1922* [1]

Months	1914	1915	1916	1917	1918	1919	1920	1921	1922
	Bushels	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*	*Bushels*
January	29, 549	37, 482	64, 899	167, 458	69, 660	1, 308	335, 569	20, 733	38, 978
February	77, 006	24, 000	54, 468	111, 699	73, 229	9, 930	244, 153	63, 732	20, 307
March	82, 459	56, 496	87, 577	307, 063	6, 822	26, 006	369, 262	41, 405	181, 520
April	88, 929	54, 870	27, 649	116, 229	54, 167	7, 043	143, 371	7, 243	241, 505
May	83, 302	74, 433	73, 105	118, 100	32, 434	44, 439	88, 452	13, 016	155, 497
June	61, 682	63, 902	64, 768	52, 062	14, 727	53, 607	104, 942	9, 036	28, 840
July	101, 442	32, 768	93, 725	96, 023	2, 011	16, 790	95, 009	32, 181	213, 254
August	79, 554	30, 374	76, 533	124, 696	1, 307	85, 968	35, 224	125, 029	58, 147
September	83, 750	91, 692	237, 344	92, 804	3, 612	199, 609	59, 743	261, 965	56, 171
October	143, 829	129, 758	211, 345	164, 491	152	94, 490	177, 742	306, 447	237, 484
November	36, 931	128, 044	165, 476	205, 381	99	60, 414	119, 396	652, 883	79, 373
December	72, 488	30, 770	100, 914	378, 968	2, 809	141, 082	46, 295	442, 413	139, 222
Total	940, 921	754, 589	1,257,803	1,934,974	261, 029	740, 686	1,819,158	1,976,083	1,450,298
Equivalent number of cars at 500 bushels each	1, 882	1, 509	2, 516	3, 870	522	1, 481	3, 638	3, 952	2, 901

[1] Source: Bureau of Foreign and Domestic Commerce.

MARKET INFORMATION AND ITS EFFECT ON GROWERS AND DEALERS

Market forces do not influence the price in exact proportion to their actual importance, for market information can not be absolutely accurate, complete, and up to the day in all respects at all times. Moreover, the effect of each of these forces is minimized or increased in accordance with the temporary attitude of the mind of the dealers, shippers, and growers. It was not so much the quantity of old stock remaining on hand at the beginning of the 1918 season, for example, that caused prices to open so low, as it was the exaggerated effect of this old stock on the minds of growers and dealers. If it had not been for the undue pessimism in the minds of growers and dealers in 1918, that season's crop probably could have been marketed as easily and at higher prices. Likewise in 1919, the smallness of supplies of old stock on hand at the opening of the season exerted more influence on opening prices than the proportion of old stock to the Bermuda crop would seem to warrant. On the other hand, the influence of the light crop in 1919 was not fully appreciated until the middle of May, when prices rose sharply.

In 1920 the pessimism of the middle of March, the extremely high values of early April, and the low prices of the latter half of the season can not be sufficiently explained by changes in actual conditions. The pendulum of sentiment of those interested merely swung too far in each direction. The influence exerted on price by other factors is modified in the same way. While actual conditions are the primary causes that modify prices, what the dealers and producers think about these conditions is also a factor of no small import.

The contrast between the wide shipping margin exacted at the beginning of the season and that usually required later, as described

in the section on margins, illustrates the effect of market information on margins. At the beginning of the season many markets have not been sounded out by the arrival and sale of a car. The prices that will be paid on all markets are more or less problematical, information is not so generally diffused as later, and the information of the buyer is generally more complete than that of the seller.

The buyer or speculator knows that his profit depends upon how much lower than city prices he can buy and deliver cars, and the price he offers for early shipments is usually conservative. Later in the season, prices in the cities are more stabilized, market information is thoroughly diffused through the medium of government daily market reports and other sources, and competition forces the cash market close to the net that would be realized by shipping.

It is evident that lack of market information is conducive to wide margins and that well-diffused and complete information on the state of the market and the influence of market factors leads to narrow margins.

GENERAL PRICE LEVEL

Probably inflation and other economic conditions, which have affected the general price level and the prices of agricultural products generally, had some effect on the prices paid for Bermuda onions. The high prices of 1919 and the low prices of 1921 may have been partly due to these factors, but a comparison of seasonal prices with indexes of commodity prices or with indexes of general agricultural commodity prices fails to show any marked correlation because of the relatively minor influence of these factors, as compared with others. (See Table 6.)

PRICE FLUCTUATIONS WITHIN A SEASON

The factors that cause wide fluctuations within the season, and the differences between the amount of seasonal fluctuation for different years, seem to be principally: (1) Period of the season and changing consumer demands; (2) volume of shipments from day to day; (3) weather conditions; (4) transportation conditions; and (5) supply and prices of competing foodstuffs.

PERIOD OF THE SEASON AND CHANGING CONSUMER DEMANDS

A considerable decline in price from the beginning of the season to the end is characteristic of the Bermuda season. The rate of decline varies, and in some years prices climb back almost to the high point. The general tendency of prices to fall as the season progresses is probably due principally to three factors: Changing demands of consumers, heavier shipments, and poorer quality and condition.

Consumers are willing to pay a higher price for Bermuda onions when they first come on the market in the spring than they are willing to pay later, and so far as this factor operates the usual seasonal decline will probably always take place. Moreover, poorer quality and condition of shipments as the season progresses are partly due to climatic factors and growing conditions on which the growers can probably exert slight influence. Shipments under ideal conditions could be controlled only enough to move the entire crop within the two or three months before the more cheaply produced northern onions are harvested.

What growers and shippers can do is to so organize distribution through the period as to prevent the flooding of every market early in the season with larger quantities than can readily move into consumption. That is particularly true with poorly graded onions, for they are harder to move than the first grade. It ought to be possible to temper the rapidly falling prices of a year like 1920 or 1922 by proper control of shipments.

VOLUME OF SHIPMENTS FROM DAY TO DAY

The usual seasonal fall in prices has generally been checked temporarily whenever a cessation of shipments occurs, followed the next week by higher prices as markets clean up. Dealers tend to discount this occurrence and bid prices up immediately, particularly at shipping points. Where the price rise precedes or accompanies the decline in shipments this discounting process is responsible. Prices are bid up immediately when a heavy rain shuts off shipments. The shipments already harvested continue to move out, and, if the shipments for the first part of the week have been heavy, the weekly average of shipments may not show the effect until the following week.

Even huge quantities in the field seem to have little depressing influence unless shipped steadily in large quantities. Dealers with plenty of onions on hand want no more except at a low price, and the influence of the excess supply quickly forces prices down. At the last of the season the effect of reduced Bermuda shipments is not so noticeable, because of the increasing receipts of other new stock and the deteriorating quality and condition of the Bermudas.

What is needed is some workable arrangement whereby the markets of the country will be supplied with the proportionate part of the crop that they will consume. The entire crop must be marketed at such prices as will move all of it before it meets the competition of the northern onions. Under the present system the Texas crop breaks its own market nearly every year. With a reasonable distribution of the shipments through the period of the movement, with shipments held back when markets become overloaded, it is probable that the total crop could be sold as easily and that much better average prices could be secured.

WEATHER CONDITIONS

Condition of the weather at shipping points during harvesting is an important physical factor affecting prices, as has already been shown. Heavy rains in the producing area retard digging and allow the consuming centers to dispose of accumulated stocks, thus stimulating steady or higher prices. On the other hand, rains during harvest are likely to injure the carrying quality of the onions, especially if they are thoroughly mature, and in this way cause lower prices. If onions are somewhat green, rains do not injure the keeping quality so much. Thus rains had a double effect in 1917. Early in the season they raised prices by threatening to curtail shipments, but prices were lowered later by the influence of these rains on the keeping quality.

Hot weather in consuming areas is generally thought to decrease demand for onions but does not seem to be an important factor.

TRANSPORTATION CONDITIONS

Freight rates have exerted a depressing influence whenever other conditions caused low prices. (See Table 8.) Since freight is a fixed charge, the closer the ratio between transportation cost and the selling price of the goods, the less is the shipper's opportunity to make a profit and the greater his likelihood of heavy loss if the market goes against him.

Available transportation facilities also affect prices. At the beginning of the 1920 season, the switchmen's strike threatened for a time to tie up the movement and cause a very wide spread in prices between shipping points or accessible markets and cities that could not be reached. The same result is effected, though in a less degree, when there is a car shortage or when the proper kinds of cars for the movement of the crop can not be secured.

TABLE 8.—*Transportation cost and usual transportation period of Bermuda onions from Laredo, Tex., to cities shown, 1916–1923*

[Freight and war tax, in cents, per 50-pound crate]

Destination	Shipping season								Shipped on Wednesday, sold on—
	1916	1917	1918	1919	1920	1921	1922	1923	
St. Louis	29.0	29.0	30.0	37.0	37.0	50.0	44.0	44.0	Monday.
Chicago	32.5	32.5	33.5	33.5	42.0	57.0	49.5	49.5	Do.
Pittsburgh	41.0	41.0	42.0	55.0	55.0	74.0	64.5	64.5	Tuesday.
Philadelphia	46.0	46.0	49.5	63.0	63.0	63.0	73.5	73.5	Wednesday.
New York	47.0	47.0	50.5	64.0	64.0	85.5	75.0	75.0	Thursday.
Boston	49.0	49.0	53.0	66.0	66.0	89.0	77.0	77.0	Do.

SUPPLY AND PRICES OF COMPETING FOODSTUFFS

The demand for onions is not influenced by the supply of other foodstuffs on the market to so great an extent as the demand for most perishable fruits or vegetables. The demand is rather inelastic. Statistics of unloaded cars of all onions for the 10 leading cities of the United States during the calendar years 1916 to 1919 show that the quantity of onions consumed annually in these cities remains fairly constant, regardless of high or low prices.[14]

FACTORS INFLUENCING THE PRICE AT A GIVEN POINT

Wholesale prices paid for Bermuda onions are mainly dependent upon general and seasonal factors rather than upon condition in any given locality. If demand is insufficient to take a car at the usual price in one city, onions can be shipped to another place, or they can usually be held until the market has come back into line with the others. Prices move uniformly in all of the principal cities, particularly those in a given eastern or western group. (See Table 9.) Variations between prices paid in different cities result from: (1) Differences in quantity, quality, and condition of receipts; (2) differences in transportation rates from shipping points; (3) degree of competition of dealers; (4) weather conditions in the city; (5) market preferences; and (6) miscellaneous factors.

[14] United States Department of Agriculture. The Market Reporter, July 17, 1920, p. 1.

TABLE 9.—*Average weekly prices per crate for commercial-pack yellow Bermuda onions at six principal markets and at shipping point, 1916–1923*

Week ended—	New York	Chicago	Pittsburgh	Boston	Philadelphia	St. Louis	Laredo
1916							
April 1	$1.66	$1.75	$1.92	$2.25	$1.71	$1.43	
8	1.35	1.44	1.49	1.52	1.29	1.41	
15	1.66	1.49	1.47	1.72	1.56	1.35	
22	1.83	1.64	1.75	1.77	1.77	1.62	
29	1.68	1.64	1.61	1.75	1.75	1.53	$1.22
May 6	1.54	1.43	1.50	1.63	1.60	1.40	1.17
13	1.65	1.46	1.60	1.75	1.62	1.36	1.22
20	1.83	1.66	1.70	1.89	1.84	1.48	1.37
27	2.20	2.00	2.00	2.10	2.00	1.80	1.67
1917							
April 8		4.65	4.75			4.00	2.66
15	4.37	4.17	5.00			3.80	2.76
22	4.45	3.68	4.16	4.91	4.45	3.30	2.58
29	3.87	2.38	2.91	4.50	3.87	2.67	1.78
May 6	2.45	2.13	2.04	2.65	2.10	1.95	1.41
13	2.16	1.87	2.00	2.14	2.00	1.81	1.58
20	2.18	2.01	2.23	2.33	2.16	2.02	1.74
27	1.94	1.86	2.10	2.23	1.75	2.00	
June 3	1.72	1.69	1.71	2.12	1.84	1.75	
10	1.53	1.44	1.56	1.65	1.65	1.46	
17	1.33	1.32	1.41	1.50	1.39	1.29	
24	1.52	1.16	1.17	1.54	1.44	1.16	
1918							
April 15		1.75	2.50				1.24
22	2.62	2.02	2.25	3.00			1.29
29	2.13	2.10	2.58		2.25	2.12	1.32
May 6	1.73		1.61	2.00			1.18
13	1.84	1.50	1.50	1.95	1.70		1.07
20	1.76	1.46	1.58	1.72	1.61		.92
27	1.61	1.22	1.59	1.56	1.56		.83
June 3	1.37	1.02	.90	1.56	1.25		
10	1.24	1.12	.95	1.50	1.24		
17	1.51	1.44	1.21	1.60	1.46		
24	1.71	1.76	1.64	1.95	1.58		
July 1	1.85	1.75	1.75	2.25	1.65	.40	
1919							
April 22		4.16	6.00	5.33	5.00		
29	4.79	3.91	5.16	5.12	4.56	3.75	2.60
May 6	3.67	3.66	4.40	4.54	3.96	3.47	2.59
13	3.97	3.59	3.89	3.91	4.04	3.55	2.71
20	5.26	3.96	4.71	4.87	5.15	3.90	3.37
27	4.60	4.03	4.39	5.25	4.75	4.04	3.50
June 3	4.15	3.70	4.40	4.75	4.45	3.90	
10	4.15	3.79	4.00	4.08	4.00	3.60	
17	4.25	3.61	4.25	4.75	2.96	2.65	
24		3.50		4.46			
July 1		3.50	3.58	4.10			
1920							
April 15		4.58			7.00		3.80
22		5.00	6.75			4.50	2.96
29	6.00	4.65	6.06	6.00	5.00	4.25	2.33
May 6	4.85	3.46	4.04	5.00	4.33	3.30	2.07
13	3.13	2.57	2.73	3.34	2.83	2.42	1.43
20	2.82	2.17	2.43	2.76	2.50	1.82	1.32
27	1.97	1.96	1.58	2.45	1.96	1.33	
June 3	1.71	1.45	1.29	1.70	1.71	1.66	
10	1.25	1.25	1.21	1.50	1.44	1.05	
17	1.18	1.25	1.00	1.34	1.15	.88	
24	1.03	1.25	1.03	1.19	.97	1.45	
1921							
April 1	3.50	2.50	3.50		3.25		1.15
8	3.15	2.24	2.62	3.58	2.87	2.08	.95
15	2.00	1.95	2.15	2.20	2.04	1.59	.84
22	1.75	1.62	2.08	2.00	2.13	1.60	.77
29	1.80	1.71	1.84	2.00	2.10	1.61	.71
May 6	1.70	1.53	1.60	2.02	1.63	1.34	.64
13	1.58	1.53	1.79	1.96	1.78	1.47	.79
20	1.55	1.76	1.66	1.75	1.70	1.52	.82
27	1.58	1.57	1.58	1.73	1.63	1.36	
June 3	1.56	1.44	1.53	1.77	1.52	1.33	
10	1.52	1.44	1.52	1.81	1.50	1.10	
17	1.50	1.60	1.60	1.75	1.25	1.10	

TABLE 9.—*Average weekly prices per crate for commercial-pack yellow Bermuda onions at six principal markets and at shipping point, 1916–1923*—Continued

Week ended—	New York	Chicago	Pittsburgh	Boston	Philadelphia	St. Louis	Laredo
1922							
April 1			$5.75			$5.50	
8	$6.00	$4.60	5.41	$6.00	$5.20	4.66	$3.50
15	5.37	4.37	4.91	5.41	4.58	4.16	2.62
22	3.41	2.58	3.16	3.85	3.37	2.42	1.64
29	2.08	2.36	2.41	2.64	2.41	2.21	1.66
May 6	2.70	2.74	2.96	2.76	2.58	2.33	2.19
13	2.50	2.29	2.58	2.57	2.43	2.00	1.23
20	1.81	1.66	2.08	1.89	1.75	1.59	1.25
27	1.87	1.71	2.06	1.83	1.84	1.37	
June 3	1.79	1.65	1.55	1.75	1.97	1.57	
10	1.75	1.65	1.42	1.75	2.00	1.92	
17		1.68		2.12	2.25	1.50	
1923							
April 1	3.25		3.00	4.50	2.90		
8		3.35		3.13	2.17		2.75
15				3.75	2.81		2.50
22	2.83	2.40	3.65	4.38	3.35	2.88	2.06
29	2.81	3.13	3.58	3.50	3.33	2.25	1.89
May 6	2.57	3.21	3.08	2.75	3.25	2.67	1.65
13	2.64	2.29	2.58	2.85	2.41	2.31	1.73
20	2.79	2.77	3.04	3.13	2.60	2.30	2.14
27	2.64	2.63	2.81	2.75	2.68	2.31	
June 3	2.50	2.51	2.70	2.50	2.49	2.13	
10		2.30	2.50	2.50	2.64		
17	2.50	2.38	2.50		2.75	1.15	
24	3.13	2.50	2.88		2.79	2.25	
July 1	2.55	2.65	2.81	2.75	2.22	2.00	

DIFFERENCES IN AMOUNT, QUALITY, AND CONDITION OF RECEIPTS

The quantity of receipts of Bermuda onions does not affect prices on individual large markets so much as might be expected. This can be seen if comparison is made of Tables 9 and 10. Prices rise and fall together on the six principal markets with little regard to the individual differences in receipts, principally because the semiperishable character of the commodity admits of short-time storage and adjustments of distribution within a few days. In smaller cities price records show that large or small local receipts of onions exert more influence on the price.

TABLE 10.—*Weekly unloads of onions during the Bermuda season in six principal markets, 1916–1922*

Week ended—	New York		Chicago		Pittsburgh		Boston		Philadelphia		St. Louis	
	Total	Texas	Total	Texas	Total	Texas	Total	Texas	Total	Texas	Total	Texas
1916												
Mar. 25	137	6	18	2	19	3	32	1				
Apr. 1	176	41	37	15	29	13	68	8	45	21	11	4
8	156	51	55	37	36	26	62	17	61	42	17	14
15	101	39	48	36	33	31	54	29	50	38	23	23
22	91½	33	41	39	40	37	42	37	23	21	19	18
29	100½	70	38	36	40	39	27	20	10	9	11	11
May 6	129½	79	63	51	25	21	59	48	24½	17	35	34
13	74	27	55	35	52	50	41	41	33½	31	16	15
20	49	31	64	37	43	34	64	63	42	38	19	14
27	61	26	58	38	71	60	43	43	76	62	12	10
June 3	70	28	56	27	41	30	16	16	41	41	20	9
10	76	31	51	26	32	19	23	22	24	18	9	5
17	43	30	39	31	10	10	28	28	23	23	9	6
24	15	8	11	1	8	4	9	7	7½	6½	2	1
July 1	35	7	7	1	7	1	14	2	14	11		
8	13	2			29	4	2	0	3½	½		
1917												
Apr. 15	4	2	16	13	9	7			1	1	15	13
22	51	47	45	42	22	22	16	8	23	19	11	11
29	71	71	57	45	38	38	14	13	36	36	26	26
May 6	137	130	40	39	67	64	58	56	75	75	30	29
13	179	179	73	68	26	24	75	73	45	44	24	23
20	107	102	61	51	25	24	52	51	34	34	28	27
27	140	133	51	27	25	21	43	39	29	29	35	31

TABLE 10.—*Weekly unloads of onions during the Bermuda season in six principal markets, 1916–1922*—Continued

Week ended—	New York		Chicago		Pittsburgh		Boston		Philadelphia		St. Louis	
	Total	Texas	Total	Texas	Total	Texas	Total	Texas	Total	Texas	Total	Texas
1917												
June 3	186	168	30	27	22	18	68	64	22	22	43	38
10	137	134	41	32	17	8	61	49	32	32	24	24
17	115	111	57	42	33	21	33	30	29	29	25	21
24	64	52	40	34	23	14	25	23	23	23	19	16
July 1	66	63	19	16	4	0	12	8	28	28	10	6
8	38	38	21	5	9	1	17	13	35	35	6	6
15	38	27	16	1	20	6	12	4	15	13	6	3
22	41	14	13	2	14	2	6	4				
1918												
Apr. 22	93	10	11	7	17	5	12	1	18	8	7	7
29	69	26	17	17	19	13	15	2	23	9	3	3
May 6	79	34	17	13	53	38	14	11	31	20	19	19
13	59	37	7	4	49	35	7	7	43	35	15	15
20	82	70	23	17	18	16	14	12	35	30	23	23
27	74	67	37	35	21	19	17	12	37	36	9	9
June 3	145	132	59	57	30	29	3	3	40	39	9	9
10	145	128	47	46	26	26	25	25	26	26	11	11
17	92	69	20	18	11	11	20	20	26	25	6	6
24	17	16	31	21	3	3	10	8	18	18	0	0
July 1	32	18	33	18	6	3	4	3	5	4	1	1
8	34	3	42	7	23	2	10	6	7	5	3	3
15	53	3	32	5	7	1	3	2				
22	14	1	22	7								
29	14	3	12	1								
1919												
Apr. 29	47	11	21	17	15	6	9	7	9	5	2	2
May 6	28	13	33	29	23	16	9	5	24	18	5	5
13	76	48	53	49	34	32	22	20	24	22	10	10
20	48	46	44	39	42	40	9	8	25	25	7	7
27	60	51	69	50	37	29	14	13	32	30	21	17
June 3	83	46	44	35	40	29	18	9	35	30	18	15
10	65	17	54	33	34	18	39	20	32	19	6	5
17	82	21	39	32	30	17	30	6	15	13	8	6
24	31	4	25	16	23	8	15	8	1	1	3	1
July 1	32	3	13	3			4	4				
1920												
Apr. 8	12	1							14	1		
15	6	1	8	2					4	0		
22			4	1					12	0		
29	2	0	28	28	6	6			25	2	9	9
May 6	36	23	48	46	29	24	14	14	51	38	4	4
13	64	59	40	39	32	28	24	24	50	43	5	5
20	113	102	44	33	41	36	26	25	32	24	6	6
27	189	168	30	19	38	33	55	51	50	42	3	3
June 3	204	124	39	39	52	27	109	92	58	55	3	3
10	150	106	55	39	60	21	52	39	60	58	4	4
17	80	76	64	29	42	8	31	19	50	23	0	0
24	30	29	21	17	66	0	36	9	52	50	0	0
July 1	3	3	3	1	26	6	8	0	14	8	1	1
8	1	1	7	1	15	5	3	2	1	1		
1921												
Apr. 1	11	3	2	1	12	3	2	1	28	3		
8	35	11	12	3	20	8	31	9	19	6	8	4
15	137	71	23	21	19	15	39	22	26	17	10	6
22	114	53	32	31	31	22	27	16	43	14	7	7
29	101	77	21	20	31	22	36	32	45	25	7	6
May 6	117	90	38	36	37	33	37	27	35	26	11	11
13	204	166	45	43	27	24	78	84	31	25	10	10
20	102	62	40	39	40	38	43	39	41	36	15	15
27	155	118	51	36	24	21	41	32	35	32	35	35
June 3	150	90	39	23	27	22	25	17	36	19	11	11
10	65	16	29	13	31	22	33	8	30	12	13	11
17	18	2	31	4	12	5	46	0	15	2	1	1
24							12	1	7	2	1	1
1922												
Apr. 8	42	21	20	8	11	1	9	7	25	6	6	5
15	66	45	32	11	12	12	17	15	23	16	19	19
22	120	119	65	62	24	21	26	26	56	38	31	30
29	201	199	80	79	44	44	60	58	44	39	21	21
May 6	109	109	65	62	25	25	58	58	53	49	16	16
13	83	82	32	31	56	52	31	31	39	36	22	22
20	109	102	67	48	29	28	55	54	51	46	16	16
27	109	85	64	29	17	16	43	33	32	30	14	14
June 3	105	62	71	14	19	12	14	3	21	18	7	4
10	54	14	57	12	31	9	21	6	16	6	8	5
17	56	0	18	2			3	0	24	11	10	5
24	55	3	32	5			38	6	19	4	8	2

The effect of differences in quality and condition is more noticeable. The severe decline on the Philadelphia market in June, 1919, was the result of heavy arrivals of stock in poor condition. Poor quality and condition depress prices more than the difference between the prices paid for the different grades on most markets would indicate, because such onions tend to clog the channels of trade.

TABLE 11.—*Wholesale prices of commercial-pack yellow Bermuda onions, per crate, in consuming centers and at shipping points, 1916–1923*

	1916		1917		1918		1919		1920		1921		1922		1923	
	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price
	Dols.	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*
Mar. 26	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	4.00	-----
27	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	3.00	-----
28	[1] 2.12	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	2.88	-----
29	1.92	-----	-----	-----	-----	-----	-----	-----	-----	-----	[1] 3.08	1.25	-----	-----	2.88	-----
30	1.81	-----	-----	-----	-----	-----	-----	-----	-----	-----	3.17	1.15	-----	-----	[1] 3.33	-----
31	1.76	-----	-----	-----	-----	-----	-----	-----	-----	-----	2.50	1.10	-----	-----	-----	-----
Apr. 1	1.72	-----	-----	-----	-----	-----	-----	-----	-----	-----	2.50	1.10	-----	-----	Sun.	-----
2	Sun.	-----	-----	-----	-----	-----	-----	-----	-----	-----	3.00	1.10	-----	-----	3.38	-----
3	1.55	-----	[1] 4.47	2.75	-----	-----	-----	-----	-----	-----	Sun.	-----	[1] 5.37	-----	3.50	-----
4	1.48	-----	-----	2.75	-----	-----	-----	-----	-----	-----	2.57	1.00	5.44	-----	2.75	-----
5	1.38	-----	-----	2.60	-----	-----	-----	-----	-----	-----	2.91	1.00	4.87	-----	2.63	-----
6	1.32	-----	-----	2.55	-----	-----	-----	-----	-----	-----	2.68	1.00	4.95	-----	3.25	2.75
7	1.33	-----	4.00	-----	-----	-----	-----	-----	-----	-----	2.64	.90	5.00	3.50	2.63	2.75
8	1.37	-----	Sun.	-----	-----	-----	-----	-----	-----	-----	2.29	.85	5.75	-----	Sun.	-----
9	Sun.	-----	4.50	2.80	-----	-----	-----	-----	-----	-----	2.30	.85	Sun.	-----	3.00	2.50
10	1.35	-----	4.00	2.75	-----	1.25	-----	-----	-----	4.25	Sun.	-----	5.15	3.00	3.00	2.50
11	1.44	-----	4.00	-----	-----	1.20	-----	-----	Sun.	-----	2.07	.85	4.95	2.75	3.00	2.50
12	1.48	-----	4.33	2.75	-----	1.25	-----	-----	5.88	4.00	2.01	.90	4.86	2.75	3.00	-----
13	1.56	-----	3.50	2.75	-----	-----	-----	-----	[1] 5.75	3.75	1.96	.75	4.96	2.50	-----	2.50
14	1.61	-----	4.25	-----	Sun.	-----	-----	-----	5.75	3.75	1.95	.80	4.61	2.50	-----	2.50
15	1.70	-----	Sun.	-----	2.12	1.25	-----	-----	-----	3.25	1.80	.90	4.41	2.25	Sun.	-----
16	Sun.	-----	4.29	2.75	2.25	1.25	-----	-----	-----	3.00	1.70	.75	Sun.	-----	3.42	2.25
17	1.76	-----	4.20	2.70	1.80	1.30	-----	-----	-----	3.00	Sun.	-----	4.18	2.00	3.10	2.00
18	1.74	-----	4.16	2.60	-----	1.30	-----	-----	Sun.	-----	1.89	.75	3.54	2.00	3.30	2.00
19	1.72	-----	4.09	2.50	[1] 2.87	1.30	4.87	-----	5.00	3.10	1.90	.75	3.10	1.85	2.56	2.10
20	1.71	-----	4.08	2.50	-----	-----	Sun.	-----	-----	2.90	1.91	.75	2.86	1.50	3.63	2.00
21	1.74	-----	3.87	2.40	Sun.	-----	4.87	-----	5.75	3.00	1.96	.80	2.78	1.25	2.92	2.00
22	1.73	-----	Sun.	-----	2.37	1.30	[1] 5.00	-----	5.50	2.75	1.88	.80	2.50	1.25	Sun.	-----
23	Sun.	-----	3.83	2.30	2.30	1.30	5.00	2.75	4.50	2.60	1.85	.80	Sun.	-----	3.40	2.00
24	1.69	-----	3.61	1.90	2.50	1.30	4.88	2.75	5.33	2.50	Sun.	-----	2.41	-----	3.25	1.75
25	1.67	-----	3.28	1.75	2.55	1.30	4.75	2.60	Sun.	-----	1.87	.80	2.25	1.40	2.98	1.75
26	1.66	-----	3.29	1.75	2.20	1.40	4.58	2.50	5.50	2.25	1.96	.75	2.21	1.50	3.13	1.75
27	1.65	-----	2.81	1.50	2.18	1.30	Sun.	-----	4.92	2.25	1.91	.70	2.27	1.75	3.18	2.10
28	1.63	1.25	2.65	1.50	Sun.	-----	4.38	2.50	4.75	2.20	1.72	.60	2.41	2.00	2.70	2.00
29	1.66	1.20	Sun.	-----	1.87	1.30	4.15	2.50	4.81	2.20	1.72	.60	2.56	-----	Sun.	-----
30	Sun.	-----	2.46	1.50	1.83	1.25	4.13	-----	4.90	2.20	1.68	.55	Sun.	-----	3.03	1.85
May 1	1.62	1.20	2.34	1.25	1.83	1.25	4.18	2.50	4.70	2.25	Sun.	-----	2.57	2.50	3.11	1.55
2	1.52	1.20	2.19	1.50	1.73	1.10	4.00	2.60	Sun.	-----	1.67	.55	2.67	2.25	2.94	1.75
3	1.47	1.20	2.10	1.30	1.75	1.10	4.01	2.60	4.41	2.20	1.64	.60	2.71	2.25	3.08	1.55
4	1.47	1.00	2.14	1.40	1.73	-----	Sun.	-----	4.00	2.00	1.60	.70	2.82	2.25	3.27	1.60
5	1.45	1.20	2.10	1.50	Sun.	-----	3.86	2.65	3.54	2.00	1.61	.70	2.79	2.00	2.63	1.60
6	1.52	1.20	Sun.	-----	1.70	-----	3.68	2.60	3.54	1.75	1.62	.75	2.74	1.90	Sun.	-----
7	Sun.	-----	2.04	1.50	1.70	1.00	3.68	2.50	3.42	1.60	1.71	.75	Sun.	-----	2.70	-----
8	1.50	1.10	1.96	1.50	1.73	1.15	3.63	2.70	3.07	1.90	Sun.	-----	2.66	1.65	2.52	1.50
9	1.52	1.20	1.99	1.50	1.63	1.20	3.73	2.60	Sun.	-----	1.68	.80	2.64	1.50	2.44	1.50
10	1.59	1.25	1.96	1.60	1.77	-----	3.82	2.70	2.88	1.25	1.68	.80	2.49	-----	2.53	1.75
11	1.58	1.30	1.99	1.60	1.77	1.00	Sun.	-----	2.75	1.25	1.71	.80	2.31	1.00	2.47	1.90
12	1.61	1.25	2.03	1.75	Sun.	-----	4.04	2.75	2.48	1.30	1.69	.80	2.31	1.00	2.68	2.00
13	1.61	1.25	-----	-----	1.69	1.00	4.06	3.00	2.42	1.30	1.67	.80	2.12	1.00	Sun.	-----
14	Sun.	-----	2.09	1.80	1.63	1.00	4.38	3.40	2.52	1.30	1.70	.80	Sun.	-----	2.86	2.10
15	1.62	1.30	2.11	1.75	1.60	1.00	4.53	3.50	2.51	1.40	Sun.	-----	1.83	-----	2.94	2.15
16	1.66	1.30	2.14	1.70	1.62	.90	4.53	3.25	Sun.	-----	1.70	.85	1.79	-----	2.85	2.15
17	1.67	1.30	2.19	1.75	1.60	.90	4.79	3.45	2.42	1.40	1.67	-----	1.81	.75	2.63	2.15
18	1.75	1.40	2.18	1.70	1.63	.90	Sun.	-----	2.50	1.30	1.66	-----	1.81	1.00	2.72	2.15
19	1.83	1.40	2.19	-----	Sun.	-----	4.83	3.25	2.33	1.30	1.62	-----	1.75	1.00	2.70	-----
20	1.86	1.50	-----	-----	1.74	.80	4.71	-----	2.32	1.25	1.64	-----	1.90	-----	Sun.	-----

[1] Date when reports were first received from at least three markets. Average prices previous to this tend to be unreliable, because computed from two markets only, so that poor quality receipts or exceptional conditions in either market would exert too great an influence.

TABLE 11.—*Wholesale prices of commercial-pack yellow Bermuda onions, per crate, in consuming centers and at shipping points, 1916–1923*—Continued

	1916		1917		1918		1919		1920		1921		1922		1923	
	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price	Composite terminal price	Texas shipping point price
	Dols.	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*	*Dols.*
May 21	Sun.		2.11		1.58	.85	4.63	3.50	2.25		1.86		Sun.		2.82	
22	2.00	1.60	2.09		1.53	.90	4.54	3.50	2.15		Sun.		1.89		2.78	
23	2.03	1.75	2.09		1.49	.80			Sun.		1.60		1.96		2.73	
24			1.97		1.46	.80	4.48		2.10		1.55		1.85		2.44	
25			1.93		1.49	.80	Sun.		1.94		1.57		1.75		2.56	
26			1.93		Sun.		4.46		1.82		1.57		1.80		2.51	
27			Sun.		1.47		4.38		1.69		1.46		1.77		Sun.	
28			1.90		1.46		4.62		1.69		1.60		Sun.		2.53	
29			2.00		1.33		4.21		1.61		Sun.		1.75		2.54	
30			Hol.		Hol.		Hol.		Sun.		Hol.		Hol.		Hol.	
31			1.86		1.32		4.17		1.50		1.52		1.73		2.39	
June 1			1.71		1.17		Sun.		1.65		1.53		1.68		2.57	
2			1.66		Sun.		4.25		1.53		1.64		1.75		2.53	
3			Sun.		1.23		4.08		1.43		1.48		1.73		Sun.	
4			1.63		1.16		3.96		1.31		1.53		Sun.		2.55	
5			1.62		1.21		4.06		1.25		Sun.		1.78		2.55	
6			1.57		1.30		3.75		Sun.		1.46		1.72		2.58	
7			1.46		1.30		3.75		1.32		1.44		1.66		2.50	
8			1.46		1.29		Sun.		1.28		1.53		1.85		2.58	
9			1.50		Sun.		4.04		1.30		1.59		1.76		2.45	
10			Sun.		1.30		4.00		1.27		1.57		1.70		Sun.	
11			1.46		1.29		3.55		1.21		1.54		Sun.		2.45	
12			1.41		1.31		3.21		1.20				1.65		2.46	
13			1.38		1.43		3.92		Sun.				1.97		2.58	
14			1.34		1.49		3.63		1.22				1.94		2.17	
15			1.35		1.67		Sun.		1.14						2.62	
16			1.29		Sun.		3.95		1.11						2.62	
17			Sun.		1.68		4.42		1.06						Sun.	
18			1.29		1.70		4.33		1.04						2.78	
19			1.39		1.74		4.25		1.06						2.75	
20			1.31		1.74		4.42		Sun.						2.70	
21			1.36		1.74		3.92		1.20						3.00	
22			1.35		1.71		Sun.		1.17						2.50	
23			1.23		Sun.		3.85		1.14						3.25	
24			Sun.		1.80		3.88		1.18						Sun.	
25			1.29		1.91				1.17						3.93	
26			1.31		2.00		3.92		1.07						2.66	
27			1.30		1.55		3.75		Sun.						2.57	
28					1.92		3.83		1.25						2.38	
29					1.93				1.21						2.13	
30									1.19						2.63	
July 1									1.14						Sun.	
2															1.93	

DIFFERENCES IN TRANSPORTATION RATES FROM SHIPPING POINTS

The freight rate per crate from Laredo, Tex., to Chicago in 1922 was approximately 50 cents, as compared with 75 cents to New York. Similar differentials existed with regard to other cities. A still greater difference in rates exists between California and Texas shipping points. Freight rates thus create fixed advantages of certain shipping points and markets over others which will always be indicated by the price paid, other things being equal.

In the producing areas those growers located at a distance from the important buying centers have sometimes had to sell their onions a few cents per crate less than otherwise because of the lack of competition. In the important shipping centers, however, competition between the dealers has usually been rather keen.

WEATHER CONDITIONS IN THE CITY

Weather conditions in consuming centers do not affect onion prices so much as they do prices of more perishable fruits and vegetables, as has already been shown. Theoretically, Bermuda onions should sell slightly better in cool than in warm weather, but available records do not prove this to be true. Onion prices seem to be rather independent of ordinary weather conditions in consuming centers.

MARKET PREFERENCES

Crystal Wax boilers (small onions) have usually sold at a discount of 50 cents to $1 per crate from the price paid for grade No. 1 in most principal markets, except New York. New York City has a large foreign population that wants small Crystal Wax onions, enough to offer a premium of 25 to 50 cents for these onions over grade No. 1. In 1919 the premium rose to $1. If a grower grades carefully and is prepared to take advantage of such market preferences, he can often net considerable profit for himself with little additional expense.

So far as other grades of the two varieties are concerned, all the larger markets over a period of time show about equal preferences for an equivalent grade of one variety over the other as measured by the price differential. All markets seem to pay more for Crystal Wax at the beginning of the season in about the same proportion; all pay about equally as the season progresses; and Crystal Wax prices generally decline on all at the clean-up on account of the deterioration in quality. However, at any given time one market may be paying a greater premium for Crystal Wax than another on account of irregularities in local consumption or irregularity of supply.

MISCELLANEOUS FACTORS

Several factors which sometimes exert a considerable influence upon prices paid at a given point, but are difficult to measure, include good or bad salesmanship of the trade, extent to which onions are pushed by retail agencies, earning power of the people at the time, character of the population in a given city, and bargaining ability of traders. The influence of these factors varies greatly at different periods and no conclusions are warranted without further study.

All of the factors discussed in the preceding pages do not operate simultaneously in every market; sometimes one factor is of prevailing influence and sometimes another. Usually the price at a given point depends upon the operation of the factors that produce changes in seasonal conditions and changes in condition within the season even more than upon local conditions. On the other hand, local conditions react upon the broader market, for, obviously, when local conditions are unfavorable in several important markets prices must decline generally. The price paid at a given point at a given time for a given quantity of Bermuda onions of a certain description will depend upon the interaction and interrelation of the factors described, and will be the net resultant of these various forces.

CONCLUSIONS

Bermuda onions are grown in southern Texas, southern California, and Louisiana; principally in Texas. They supply nearly all of the markets during April, May, and June, but three-fourths of them are

marketed within a space of five weeks. Shipments usually come quickly to a peak, decline slightly on account of rains and a change in producing areas, advance to a second peak and then quickly decline, although a few straggling cars continue to be shipped for several weeks.

Bermudas are distributed in carlot quantities throughout the United States, Canada, and Cuba. Eighty per cent are sent to the 26 per cent of the population in cities of 100,000 or over. One-third of the cities with a population of 25,000 or over in the United States do not receive so much as 1 car of Bermudas a year, and 20 per cent have not received a car for eight years.

The grower markets his onions in one of the following ways: (1) Sale through a dealer who has financed the grower; (2) by contracts prior to harvest; (3) for cash at shipping point; (4) through an agent on consignment; (5) through a cooperative association; (6) direct through wholesale dealers in consuming centers.

There is much difference of opinion as to the relative merits of selling at shipping point or at destination. The sale at point of destination has generally been the more profitable for the grower at the beginning of the season and least profitable near the close of the season. The dealer who buys at shipping point and ships to consuming centers performs certain valuable services for the grower. For these services, including all costs except transportation, he has received an average of 13 cents a crate the past seven years, as compared with 23 cents for transportation and 64 cents for the producer. Aside from the question of the relative worth of his services and of the margin he receives, the greatest weakness of the system from the grower's standpoint is that such buyers are likely to be on hand when conditions are favorable, but either receive shipments only on consignment or leave the section entirely when marketing conditions are most unfavorable, with the result that the grower is without the buyer's services when he needs marketing facilities the most.

Bermuda onion prices are characterized by wide fluctuation both within each season and as between one season and another. This extreme variation, coupled with very high costs of production, renders the growing of Bermuda onions unusually speculative.

Four groups of factors affect Bermuda onion prices: (1) Physical factors inherent in the given lot of Bermudas; (2) factors primarily determining the variations between seasons; (3) those factors influencing price fluctuations within a given season; and (4) those factors influencing prices principally at a given point. These groups may be severally subdivided into five or six factors, each of which may have an important effect at particular times. Probably the most important are the variety, quality, and condition of the stock, the amount of carry over of old onions, the prices at which these onions are selling when the season opens, the steadiness and volume of shipments of new stock during the season, and the period in the season.

So close a correlation exists between the quantity of old onions in storage February 1 and the opening price of Bermuda onions, that it is possible to predict approximately the prices for Bermudas two months before the season opens. The quantity of old onions in storage exerts an influence on the opening and seasonal prices of the new stock out of proportion to the relative size of the old-stock carry over and the new crop of Bermudas.

The size of the new crop exerts only a moderate influence on the price level at which the new crop will sell. The rate of shipments does, however, affect the price during the season considerably. The tendency of Bermuda prices every year is to decline as the season progresses. But whenever shipments are diminished materially, this tendency has been checked.

Poorly graded onions exert a depressing influence on prices to a greater degree than the difference in quality would indicate. They tend to accumulate in dealers' hands and by increasing the visible supply retard the sale of all onions.

Most of the factors affecting prices are beyond the control of the individual grower. He should do all he can to have his onions ready for the early market, he should grade carefully, and he should ship according to the market.

The big problems of marketing Bermuda onions can be successfully solved only by organized united effort. A thoroughly organized working organization of a good majority of those interested can (1) distribute the crop more thoroughly, develop markets not now being reached, and stimulate consumption by consciously directed effort; (2) feed the market gradually what it can consume during the Bermuda season at reasonable prices, instead of throwing the stock on the market at once regardless of demand; (3) install a system of grading and inspection that will prevent shipment of huge quantities of ungraded onions to clog the channels of trade; and (4) be ready to serve the industry whether marketing conditions are favorable or not, and ready to put forth unusual effort to move the crop in those years when marketing conditions are at their worst. A sufficient start has already been made to prove that all of these objects can be accomplished.

UNITED STATES GRADES FOR BERMUDA ONIONS[15]

Recommended by the United States Department of Agriculture

U. S. Grade No. 1

U. S. Grade No. 1 shall consist of sound onions of one variety which are mature, bright, well-shaped, free from doubles, splits, bottle-necks, and seed-stems, and practically free from damage caused by dirt or other foreign matter, moisture, sunburn, cuts, disease, insects, or by mechanical or other means. The diameter shall not be less than two inches.

In order to allow for variations incident to commercial grading and handling, six percentum by weight of any lot need not meet the foregoing requirements of this grade. In the case of yellow onions not more than five percentum by weight of any lot may be noticeably pink.

If any lot which meets the requirements of this grade contains more than ten percentum by weight of onions with a diameter of three and one-half inches or more, the grade name shall be "U. S. Grade No. 1 Large."

U. S. Grade No. 2

U. S. Grade No. 2 shall consist of sound onions of one variety not meeting the requirements of U. S. Grade No. 1, which are free from doubles, splits, bottle-necks, and seed-stems, and practically free from damage caused by moisture, sunburn, cuts, disease, insects, or mechanical means. The diameter shall not be less than two inches.

In order to allow for variations incident to commercial grading and handling ten percentum by weight of any lot may be below the requirements of this grade.

[15] From United States Department of Agriculture Department Circular No. 97, 1920.

If any lot which meets the requirements of this grade contains more than ten percentum by weight of onions with a diameter of three and one-half inches or more, the grade name shall be "U. S. Grade No. 2 Large."

If any lot which meets the requirements of U. S. Grade No. 2 or U. S. Grade No. 2 Large contains more than ten percentum by weight of noticeably pink onions, the grade name shall be "U. S. Grade No. 2 Pink" or "U. S. Grade No. 2 Large, Pink," as the case may be.

U. S. Grade Boilers

U. S. Grade Boilers shall consist of sound onions of one variety which are free from doubles, splits, bottle-necks, and seed-stems, and practically free from damage caused by moisture, sunburn, cuts, disease, insects, or mechanical means. The diameter shall not be less than one inch nor more than two inches.

In order to allow for variations incident to commercial grading and handling, six percentum by weight of any lot may be below the requirements of this grade.

U. S. Grade No. 3

U. S. Grade No. 3 shall consist of onions which do not meet the requirements of any of the foregoing grades.

DEFINITION OF GRADE TERMS

As used in these grades—

"Sound" means free from water-soaked, decayed, sprouted, or otherwise unsound onions.

"Mature" means having reached a stage of development at which the onions are firm—not soft or spongy.

"Bright" means having the normal, attractive, pearly luster of Bermuda onions.

"Well shaped" means having the general appearance of being round—not three, four, or five-sided, or badly pinched by dry, hard soil, or thick necked, but need not be of the exact, typical flat Bermuda shape.

"One variety" means one variety or type, such as the Crystal Wax or White Bermuda (white), or Yellow Bermuda (yellow), and not a mixture of different varieties or types.

"Practically free from damage" means that the appearance shall not be injured to an extent readily apparent upon casual examination.

"Sunburn" means discoloration or other damage due to exposure to the sun, but does not mean the green color running down the "veins" in the Crystal Wax or White Bermuda (white) variety, unless such green color covers the surface between the veins.

"Diameter" means the greatest dimension at right angles to a straight line running from the stem to the root.

"Noticeably pink" means the pink color often found in the Yellow Bermuda variety, which is so conspicuous as to be readily apparent upon casual examination of the lot.

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